EVELY
N
O F
TREES

1670

21957/c

By the Council *of the* ROYAL SOCIETY *of* London *for* Improving of Natural Knowledge.

Ordered, That the *Book* written by *John Evelyn* Esq; *Fellow* of this *Society*, Entituled

SYLVA; Or a *Discourse* of *Forest-Trees*, and the Propagation of *Timber* in His *Majesties* Dominions: To which is annexed *POMONA*; Or an *Appendix* concerning *Fruit-Trees* in relation to *Cider*, the Making and several ways of Ordering it, be Printed by *John Martyn* and *James Allestry*, Printers to the said *Society*.

BROUNCKER, P.R.S.

43098

SYLVA,

Or A DISCOURSE Of

FOREST-TREES,

AND THE

Propagation of Timber in His MAJESTIES Dominions.

As it was Deliver'd in the *ROYAL SOCIETY* the xv^th^ of *October*, CIↃIↃCLXII. upon occasion of certain *Quæries* propounded to that *Illustrious Assembly*, by the *Honourable* the Principal *Officers*, and *Commissioners* of the *Navy*.

To which is annexed

POMONA; Or, An *Appendix* concerning *Fruit-Trees* in relation to *CIDER*; The *Making*, and severall wayes of *Ordering* it.

Published by expresse Order *of the* ROYAL SOCIETY.

ALSO

KALENDARIUM HORTENSE; Or, the *Gard'ners Almanac*; Directing what he is to do *Monthly* throughout the *Year*.

All which severall *Treatises* are in this *SECOND EDITION* much *Inlarged* and *Improved*

BY

JOHN EVELYN *Esq*; Fellow of the *ROYAL SOCIETY*.

——*Tibi res antiquæ laudis & artis*
Ingredior, tantos ausus recludere fonteis. Virg.



LONDON,
Printed for *Jo. Martyn*, and *Ja. Allestry*, Printers to the *Royal Society*. MDCLXX.

WELLCOME
HISTORICAL
MEDICAL
LIBRARY

TO THE

KING.

SIR,

THIS Second Edition *of* SYLVA, *after more than a* Thouſand Copies *had been Bought up, and diſpers'd of the* Firſt Impreſſion, *in much leſſe time than* two *Years ſpace (which* Book-ſellers *aſſure us is a very* extraordinary *thing in* Volumes *of this bulk) comes now again to pay its* Homage *to your Serene* Majeſty, *to whoſe* Auſpices *alone it owes the favourable* Acceptance *which it has received in the World. But it is not* That *alone, which it preſumes to tell your* Majeſty, *but to acquaint* You, *that it has been the* ſole *Occaſion of furniſhing your almoſt exhauſted* Dominions, *with more (I dare ſay) than* two Millions *of* Timber-Trees; *beſides infinite* Others, *which*

have been Propagated within the three Nations, *at the* Instigation, *and by the Direction of this* Work; *and that the* Author *of it is able (if need require) to make it out, by a competent* Volume *of* Letters, *and* acknowledgments, *which are come to his hands from several* Persons *of the most eminent Quality; many of them* Illustrious, *and divers of them* unknown *to him, in justification of what he asserts, which he the rather preserves with the more care; because they are* Testimonials *from so many* honourable *Persons, of the* Benefit *they have receiv'd from the* Endeavours *of the* Royal Society, *which, now adayes, passes through so many* Censures; *but, she has yet your* Majesty *for her* Founder *and* Patron, *and is therefore the less concern'd; since no man of* worth *can likely speak ill of an* Assembly, *which your* Majesty *has thought fit to dignifie, by so signal a* Relation *to it.*

It is now about five *years past, that your* Majesty *was pleas'd to declare your favourable Acceptance of a* Treatise *of* Architecture *which I then presented to you, with many* gracious *expressions, and that it was a most* useful *Piece. Sir, That* Encouragement (*together with the* success *both of the* Book *it self, and of the* first Edition *of* this) *has animated me to make a second* Oblation *to you of these* Improvements: *Nor was it certainly, without some* Provident *Conduct, that we have been thus solicitous to begin as it were, with* Materials *for* Building, *and* Directions

to

DEDICATORY.

to Builders; *if due Reflections be made on that deplorable* Calamity, *the* Conflagration *of your* Imperial City; *which nevertheleſſe by the Bleſſing of* GOD, *and your* Majeſties *gracious* Influence, *we deſpair not of ſeeing* Riſe *again, a* New, *and much more* Glorious *PHOENIX.*

This TRIBUTE, *I now once more lay at the* Feet *of our ROYAL FOUNDER: May your* Majeſty *be pleas'd, to be* Invok'd *by that no* Inglorious *TITLE in the profoundeſt* Submiſſions *of*

Gracious Sir,

Says-Court
Aug. 24 1669.

Your Majeſties

Ever Loyal, *moſt* obedient,

and Faithful Subject,

and Servant,

J. EVELYN.

TO THE

READER.

AFter what the *Frontiſpiece* and *Porch* of this *Wooden Edifice* preſents you, I ſhall need no farther to repeat the *Occaſion* of this following *Diſcourſe*; I am onely to acquaint you, That as it was delivered to the *Royal Society* by an unworthy *Member* thereof, in Obedience to their *Commands*; by the *ſame* it is now *Re-publiſh'd* without any farther Proſpect: And the *Reader* is to know, That if theſe dry *ſticks* afford him any *Sap*, it is one of the *leaſt* and *meaneſt* of thoſe *Pieces* which are every day produc'd by that *Illuſtrious Aſſembly*, and which enrich their *Collections*, as ſo many *Monuments* of their accurate *Experiments*, and Publick endeavours, in order to the production of *real* and uſeful *Theories*, the Propagation and Improvement of *Nutural Science*, and the honour of their *Inſtitution*. If to *this* there be any thing ſubjoyned *here*, which may a while beſpeak the Patience of the *Reader*, it is onely for the encouragement of an *Induſtry*, and worthy *Labour*, too much in our dayes *neglected*, as haply reputed a *Conſideration* of too ſordid and vulgar a nature for *Noble Perſons*, and *Gentlemen* to buſie themſelves withal, and who

oftner find wayes to *Fell down*, and Deſtroy their *Trees* and *Plantations*, than either to *repair* or *improve* them.

But we are not without hopes of taking off theſe *Prejudices*, and of reconciling them to a *Subject* and an *Induſtry* which has been *conſecrated* (as I may ſay) by as *good*, and as *great* Perſons, as any the World has produced: and whoſe Names we find mingl'd amongſt *Kings*, and *Philoſophers*, grave *Senators*, and *Patriots* of their Countrey: For ſuch were of old *Solomon*, *Cyrus*, and *Numa*, *Licinius* ſirnamed *Stolo*, *Cato*, and *Cincinnatus*; the *Piſo*'s, *Fabii*, *Cicero*, the *Plinies*, and thouſands more whom I might enumerate, that diſdained not to cultivate theſe *Ruſticities* even with their own hands, and to eſteem it a great *Acceſſion*, to dignifie their *Perſons*, and adorn their *purple* with theſe *Rural Characters* of their affections to *Planting*, and love of this part of *Agriculture*, which has tranſmitted to us their venerable *Names* through ſo many *Ages* and *Viciſſitudes* of the World.

That famous *Anſwer* alone which the *Perſian Monarch* gave to *Lyſander*, will ſufficiently juſtifie that which I have ſaid; beſides what we might add, out of the *Writings* and *Examples* of the reſt: But ſince *theſe* may ſuffice, after due reproofs of the late impolitique *Waſt*, and univerſal *ſloth* amongſt us; we would now turn our *Indignation* into *Prayers*, and addreſſe our ſelves to our better natur'd *Countrymen*; that ſuch *Woods* as do yet remain intire, might be carefully *Preſerved*, and ſuch as are *Deſtroy'd*, ſeduloufly *repaired*: It is what all Perſons who are *Owners* of *Land* may contribute to, and with infinite *delight*, as well as *profit*, who are touch'd with that laudable *Ambition* of imitating their Illuſtrious *Anceſtors*, and of worthily ſerving their *Generation*. To theſe my earneſt and humble *Advice* ſhould be, That at their very firſt coming to their *Eſtates*, and as ſoon as they get *Children*, they would ſeriouſly think of *this Work* of *Propagation* alſo:

For,

See *Petrarch de Remed. utriuſque fortunæ* L. 1. *Dial.* 57.

For, I obſerve there is no part of *Husbandry*, which men commonly more *Fail* in, *neglect*, and have cauſe to *repent* of, than that they did not begin *Planting betimes*, without which, they can expect neither *Fruit*, *Ornament*, or *Delight* from their *Labours*: Men ſeldom Plant *Trees* till they begin to be *Wiſe*, that is, till they grow *Old*, and find by *Experience* the *Prudence* and *Neceſſity* of it.

My next *Advice* is, that they do not eaſily commit themſelves to the *Dictates* of their ignorant *Hinds* and *Servants*, who are (generally ſpeaking) more fit to Learn than to Inſtruct. *Male agitur cum Domino quem Villicus docet*, was an Obſervation of old *Cato*'s; and 'twas *Iſchomachus* who told *Socrates* (diſcourſing one day upon a like ſubject) *That it was far eaſier to* Make *than to* Find *a good Husband-man*: I have often prov'd it ſo in *Gardeners*; and I believe it will hold in moſt of our *Countrey* Employments: We are to exact *Labour*, not *Conduct* and *Reaſon*, from the greateſt part of them; and the buſineſs of *Planting* is an *Art* or *Science* (for ſo *Varro* has ſolemnly defin'd it) and that exceedingly wide of Truth, which (it ſeems) many in his time accounted of it; *facillimam eſſe, nec ullius acuminis Ruſticationem*, an eaſie and inſipid Study. It was the ſimple *Culture* onely, with ſo much difficulty retriv'd from the late confuſion of an inteſtine and bloody *War*, like *Ours*, and now put in *Reputation* again, which made the noble *Poet* write

Vide & Curtium, l. 7. &c.

De R. R.

——How hard it was
Low Subjects with illuſtrious words to grace.

——*Verbis ea vincere magnum*
Quam ſit, & anguſtis hunc addere rebus honorem.
Georg. 3.

Seeing, as the *Orator* does himſelf expreſſe it, *Nihil eſt homine libero dignius*; there is nothing more becoming and worthy of a *Gentleman*. It was indeed a plain man (a *Potter* by *Trade*) but let no body deſpiſe him becauſe a *Potter* (*Agathocles*, and a *King* was of that *Craft*) who

In agris erant tunc Senatores. Cic. *de* Senect.

Paliſſy, le Moyen de Devenir Rich.

in my Opinion has given us the true reaſon why *Husbandry*, and particularly *Planting*, is no more improv'd in this Age of ours: eſpecially, where Perſons are *Lords* and Owners of much *Land*. The truth is, ſayes he, when men have acquired any conſiderable *Fortune* by their *good Husbandry*, and *experience* (forgetting that the greateſt *Patriarchs*, *Princes*, their *Sons* and *Daughters*, belong'd to the *Plough*, and the *Flock*) they account it a *ſhame* to breed up their *Children* in the ſame Calling in which they themſelves were educated, but preſently deſign them for *Gentlemen*: They muſt forſooth, have a *Coat* of *Arms*, and live upon their *Eſtates*; So as by that time his Beard grows, he begins to be aſham'd of his *Father*, and would be ready to defie him, that ſhould upon any occaſion mind him of his *honeſt Extraction*: And if it chance that the good-man have other *Children* to provide for; *This* muſt be the Darling, be bred at *School*, and the *Univerſity*, whilſt the reſt muſt to *Plow* with the *Father*, &c. This is the *Cauſe*, ſays my *Authour*, that our *Lands* are ſo ill *Cultivated*. Every body will ſubſiſt upon their own *Revenue*, and take their *Pleaſure*, whilſt they Reſign their *Eſtates* to be manag'd by the moſt *Ignorant*, (which are the *Children* whom they leave at home, or the *Hinds* to whom they commit them.) When as in truth, and in *reaſon*, the more *Learning* the better *Philoſophers*, and the greater *Abilities* they poſſeſſe, the *more*, and the *better* are they *qualified*, to *Cultivate*, and improve their *Eſtates*: Methinks this is well and rationally argued.

And now you have in part what I had to produce in extenuation of this my *Adventure*; that *Animated* with a *Command*, and Aſſiſted by divers *Worthy Perſons* (whoſe *Names* I am prone to *celebrate* with all juſt *Reſpects*) I have preſumed to caſt in my *Symbol*; and which, with the reſt that are to follow, may (I hope) be in ſome degree ſerviceable to *him* (who e're the happy *Perſon* be) which ſhall

oblige

oblige the *World* with that compleat *Syſteme* of *Agriculture*, which as yet ſeems a *deſiderate*, and wanting to its perfection. It is (I aſſure you) what is one of the Principal *Deſigns* of the *ROYAL SOCIETY*, not in this *Particular* only, but through all the *Liberal* and more uſeful *Arts*; and for which (in the eſtimation of all equal *Judges*) it will merit the greateſt of *Encouragements*; that ſo, at laſt, what the Learned *Columella* has wittily reproach'd, and complain'd of, as a defect in that *Age* of *his*, concerning *Agriculture* in general, and is applicable *here*, may attain its deſired *Remedy* and *Conſummation* in *This* of *Ours*.

Sola enim Res Ruſtica, quæ ſine dubitatione proxima, & quaſi conſanguinea Sapientiæ eſt, tam diſcentibus eget, quam magiſtris: Adhuc in Scholis Rhetorum, & Geometrarum, Muſicorumque, Vel quod magis mirandum eſt, contemptiſſimorum vitiorum officinas, guloſius condiendi cibos, & luxurioſius fercula ſtruendi, capitumque & capillorum concinnatores non ſolum eſſe audivi, ſed & ipſe vidi; Agricolationis neque Doctores qui ſe profiterentur, neque Diſcipulos cognovi. But this I leave for our *Gallants* to Interpret, and ſhould now apply my ſelf to the *Directive* Part, which I am all this while beſpeaking, if after what I have ſaid in the ſeveral *Paragraphs* of the enſuing *Diſcourſe* upon the *Argument* of *Wood*, (and which in this *Second* Edition coming *Abroad* with innumerable *Improvements*, to at the leaſt, a *full-half* Augmented, and that with ſuch *Advantages*, as I am not afraid, to pronounce it almoſt altogether a *New-Work*, ſo furniſh'd, as I hope ſhall neither reproach the *Author*, or repent the *Reader*) it might not ſeem ſuperfluous to have *præmiſed* any thing *here* for the Encouragement of ſo becoming an *Induſtry*. There are divers *Learned*, and judicious *Men* who have *præceded* Me in this *Argument*; as many, at leaſt, as have undertaken to Write and Compile vaſt *Herbals*, and *Theaters* of *Plants*; of which we have ſome of our own *Country-men*, who have (I dare boldly

Præfat. ad P. Sylvium; which I earneſtly recommend to the ſerious peruſal of our *Gentry*. *Et mihi ad ſapientis vitam proximè videtur accedere.* Cic. *de Senectute.*

affirm it) ſurpaſs'd *any*, if not *all* the *Forriners* that are extant: In *Thoſe* it is you meet with the *Deſcription* of the ſeveral *Plants*, by *Diſcourſes*, *Figures*, *Names*, *Places* of *Growth*, time of *Flouriſhing*, and their *Medicinal Virtues*; which may ſupply any *deficiency* of mine as to thoſe *Particulars*; if the forbearing that *Repetition*, ſhould by any be imputed for a *defect*, though it were indeed none of my *deſigne:* I ſay, theſe things are long ſince performed to our hands: But there is none of theſe (that I at leaſt know of, and are come to my peruſal) who have taken any conſiderable pains how to *Direct*, and *Encourage* us in the *Culture* of *Foreſt-Trees* (the grand *defect* of this *Nation*): beſides ſome ſmall ſprinklings to be met withal in *Gervas Markham*, Old *Tuſſer*, and the *Country-Farm* long ſince Tranſlated out of *French*; and by no means ſuitable to our clime and *Country:* Neither have *any* of theſe proceeded after my *Method*, and ſo particularly, in *Raiſing*, *Planting*, *Dreſſing* and *Governing*, &c. or ſo ſedulouſly made it their buſineſs, to *Specifie* the *Mechanical Uſes* of the *ſeveral kinds*, as I have done, which was hitherto a great *deſiderate:* and in which the *Reader* will likewiſe find ſome things altogether *New* and *Inſtructive*; and both *Directions* and *Encouragements* for the Propagation of ſome *Forain* Curioſities of *Ornament* and *Uſe*, which were hitherto neglected. If I have upon occaſion preſum'd to ſay any thing concerning their *Medicinal* properties, it has been *Modeſtly* and *Frugally*, and with chief, if not onely reſpect to the poor *Wood-man*, whom none I preſume will envy, that living far from the *Phyſitian*, he ſhould in caſe of *Neceſſity*, conſult the reverend *Druid*, his * *Okes*, and his *Elme*, *Birch* or *Elder*, for a ſhort *Breath*, a Green *Wound*, or a ſore *Leg*; Caſualties incident to this hard *Labour*. Theſe are the chief *Particulars* of this enſuing *Work*, and what it pretends hitherto of *Singular*, in

* *Nè Sylvæ quidem, horridiorque naturæ facies Medicinis tarent, Sacra illa parente rerum omnium, nuſquam non remedia diſponente homini, ut Medicina, fieret etiam ſolitudo ipſa*, &c. *Hinc nata Medicina*, &c. *Hæc ſola natura placuerat eſſe remedia parata vulgò, inventu facilia, at ſine impendio, ex quibus vivimus*, &c. Plin. L. 24. c. 1.

in which let me be permitted to say, There is sufficient for *Instruction*, and more than is extant in any *Collection* whatsoever (*absit verbo invidia*) in this way, and upon this *Subject*; abstracting things *Practicable*, of solid *use*, and *material*, from the *Ostentation* and impertinences of divers *Writers*; who receiving all that came to hand on *trust*, to swell their monstrous *Volumes*, have hitherto impos'd upon the credulous *World*, without *conscience* or *honesty*. I will not exasperate the *Adorers* of our ancient and late *Naturalists*, by repeating of what our *Verulam* has justly pronounc'd concerning their *Rhapsodies* (becaus I likewise honour their painful *Endeavours*, and am oblig'd to them for much of that I know,) nor will I (with some) reproach *Pliny*, *Porta*, *Cardan*, *Mizaldus*, *Cursius*, and many others of great *Names* (whose *Writings* I have diligently consulted) for the *Knowledge* they have imparted to me on this Occasion; but I must deplore the time which is (for the most part) so miserably lost in pursuit of their *Speculations*, where they treat upon this *Argument:* But the *World* is now advis'd, and (blessed be *God*) infinitely redeem'd from that base and servile submission of our noblest *Faculties* to their blind *Traditions*. This, you will be apt to say, is a haughty *Period*; but whiles I affirm it of the *Past*, it *justifies*, and does *honour* to the *Present* Industry of our *Age*, and of which there cannot be a *greater* and more emulous *Instance*, than the *Passion* of His *Majesty* to encourage His *Subjects*, and of the *Royal Society*, His *Majesties Foundation*, who receive and promote His *Dictates*, in all that is laudable and truly *emolumental* of this Nature.

It is not therefore that I here presume to instruct *Him* in the management of that great and august *Enterprise* of resolving to *Plant* and repair His ample *Forests*, and other *Magazines* of *Timber*, for the benefit of His *Royal Navy*, and the glory of His *Kingdoms*; but to present to His

To the Reader.

Sacred Perſon, and to the *World*, what *Adviſes* I have received from *others*, obſerved my *ſelf*, and moſt Induſtriouſly *Collected* from a ſtudious propenſity to ſerve as one of the leaſt *Intelligences* in the ampler *Orb* of our *Illuſtrious Society*, and in a *Work* ſo Important and Neceſſary.

J. E.

BOOKS Publiſh'd by the *Author* of this *Diſcourſe*.

1. The *French Gard'ner*, II. *Edition*: $\frac{0}{12}$.
2. *Fumi-fugium*, or a *Prophetic Invective* againſt the *Smoke* of *London*: $\frac{0}{4}$.
3. *Sylva*, or a *Diſcourſe* of *Foreſt-Trees*, &c. the II. *Edition*, very much *Improv'd*, *Fol.*
4. *Kalendarium Hortenſe*, both in *Fol.* and *Octavo*, the III. *Edition*, much *Augmented*.
5. *Sculptura*, or the *Hiſtory* of *Chalcography* and *Engraving* in *Copper*, the *Original* and *Progreſſe* of that *Art*, &c. *Octavo*.
6. The *Parallel* of *Architecture*, being an Account of *Ten* famous *Architects*, with a *Diſcourſe* of the *Tearms*, and a *Treatiſe* of *Statues*: *Fol.*
7. The *Idea* of the *Perfection* of *Painting*: *Octavo*.

THE

Amico chariſſimo *Johanni Evelyno* Armigero,
& Societate Regali Londini. J. Beale, *S. P. D.*
In Sylvam.

FAre age quid cauſæ eſt quod tu Sylveſtria *pangis,*
Inter Sylvanos, *capripedeſque* Deos ?
Inter Hamadryadas *lætus,* Dryadaſque *pudicas,*
Cum tua Cyrrhæis *ſit* Chelys *apta modis* !
Scilicet hoc cecinit numeroſus Horatius *olim,*
Scriptorum Sylvam *quod* Chorus Omnis amat.
Eſt locus ille Sacer Muſis, & Apolline *dignus,*
Prima dedit Summo Templa *Sacranda* Jovi.
Hinc quoque nunc Pontem Pontus *non reſpuit ingens,*
Stringitur Oceanus, *corripiturque Salum.*
Hinc novus Heſperiis *emerſit mundus in oris,* Gen. 1. c. 2.
Effuditque auri flumina larga probi.
Hinc exundavit diſtento Copia cornu,
Qualem & Amalthææ *non habuere ſinus.*
Sylva *tibi curæ eſt, grata &* Pomona *refundit*
Auriferum, roſeum, purpureumque nemus.
Illa famemque ſitimque abigens expirat odores,
Quales nec Medus, *nec tibi mittit* Arabs.
Ambroſiam præbent modo cocta Cydonia, *Tantum*
Comprime, Nectareo poma *liquore fluunt.*
Progredere, O Sœcli Cultor *memorande futuri,*
Felix Horticolam *ſic imitere* Deum.

d Nobiliſſimo

Nobiliſſimo Viro *Johanni Evelyno* Regalis *Soc. Socio digniſſimo.*

AUſus laudato qui quondam reddere verſu,
Æternum & tentare melos, conamine magno
Lucreti *nomenque ſuum donaverat ævo :*
Ille leves atomos audaci pangere muſa
Aggreditur, variis & ſemina cæca figuris,
Naturæque vias, non quæ Schola garrula jactat,
Non quæ rixanti fert barbara turba Lyceo ;
Ingentes animi ſenſus, & pondera rerum,
Grandior expreſſit Genius, nec ſcripta minora
Ev'linum *decuiſſe ſolent.*
Tuque per obſcuros (victor Boylæe) *receſſus,*
Libro de coloribus. *Naturæ meditaris opus, qua luce colores*
Percipimus, quali magnus ferit organa motu
Carteſius, *quali volitant primordia plexu*
Ex atomis Gaſſende, *tuis ; ſimulachraque rerum*
Diffugiunt ſubito vaſtum per inane meatu ;
Mutato varios mentitur lana colores
Lumine ; dum tales ardens habet ipſa figuras
Purpura, Sidoniæque aliæ tinxere veneno :
Materiam aſſiduo variatam, ut Protea, *motu*
De origine formarum. *Concipis, hinc formæ patuit naſcentis origo,*
Hinc hominum ſpecies & vaſti machina cæli :
Ipſe creare Deus, ſoluſque oſtendere mundum
Boylæus *potuit ; ſed nunc favet æmula virtus*
(*Magne* Eveline) *tibi & generoſos excitat ignes ;*
Pergite Scipiadæ duo, *qui vel mille* Marones
Vincitis, & meriti longo laſſatis honore.
Tu vero dilecte nimis ! qui ſtemmate ab alto
Patricios deducis avos, ceraſque parentum
De Wotton in agro Surrenſi. Wottonicæ *de ſtirpe domus ; virtutibus æquas*
Nunc generis monumenta tui, poſt tædia Ponti

Innu-

Innumeraſque errore vias, quid Sequana *fallax,*
Quæ Rhenus *malefidus agit, quæ* Tibris, *&* Iſter,
Nota tibi : triplici quid perfida Roma *corona*
Geſſit, & Adriaca Venetus *deliberat arce,*
Quáliaque Odryſias *vexarunt prælia lunas:*
Europæ Mundique *artes* Eveline, *reducis,*
Dum Phœbo *comes ire paras, animamque capacem*
Vidit uterque polus, nec Grajum *cana vetuſtas.*
Te latuit, veterum nunc priſca numiſmata regum
Eruis, & Latias *per myſtica templa ruinas;*
Æſtimat ille Forum & vaſti fundamina Circi,
Cumque ruinoſo Capitolia *priſca Theatro,*
Et Dominos colles altæque palatia Romæ,
Regales notat inde domos, ut mole ſuperba
Surgat apex, molles quæ tecta imitantur Ionas
Qualia Romulea, Gothica *quæ marmora dextra*
Quicquid Tuſcus *habet, mira panduntur ab arte;*
O famæ patriæque ſacer! modo diruta chartis
Vivet Roma *tuis; te vindice, læta* Corinthus
Stabit adhuc magno nequicquam inviſa Metello.
Nunc quoque Ruris *opes dulceſque ante omnia curas*
Pandis ovans, triſtes maneat quæ cura Decembres,
Pleiades *hæc* Hyadeſque *jubent, ut læta* Bootes
Semina mandet humi, ardenti quæ Sirius *agro*
Cœpit ut æſtiva ſegetes torrere favilla
Quid Maij *vernantis opus, cum florea ſerta*
Invitant Dominas ruris, cum vere tepenti
Ridet ager renovatque ſuos Narciſſus *amores,*
Haud aliter victrix divinam Æneida *vates*
Luſit opus; ſimul & gracili modulatus avena,
Fata decent majora tuos Eveline, *triumphos,*
Æternum renovatur honos, te nulla vetuſtas
Obruet, atque tua ſervanda volumina cedro
Durent, & meritam cingat tibi laurea frontem
Qui vitam Sylvis *donaſti &* Floribus *ævum.*

Conſule librum Autoris de Architectura.

R. Bohun.

ΕΙΣ ΤΗΝ ΤΟΥ ΠΑΤΡΟΣ ΔΕΝΔΡΟΛΟΓΙΑΝ.

Ὑμνήσω φρενίμοιο πατρὸς μελέεσσιν ἐπαίνους;
Ὑμνήσω ἐπέεσσιν ἀριζηλοῦς γεωργῶν·
Οὐρανίην ζαναῆς ἀρετὴν δρυὸς αὐτὸς ἔγραψεν,
Καὶ ποζαπῶν γενεὴν δένδρων καὶ δάσκιον ὕλην·
Ἀθανάτων κύδιστος ἔη νεφεληγερέτα Ζεύς,
Ἔσχεν δὴ δένδρεια φίλας περὶ δέσσιν ἔελδως,
Φύλλοις τ' ἀμβρόσιοις θαλερῆς δρυὸς ἐσεφάνωτο·
Ἀγλιακῶν ὃς ἀρίστος ἔη θεοείκελος ἀνὴρ,
Ἰσορίην δένδρων τέλεσεν φρεσὶ κυδαλίμοισι,
Ὑλογενὴς, κηπουρὸς, ὑποφήτης, ὃς μέγ' ὄνειαρ
Ἀνδράσιν ἐσομένοις καὶ γαίην πυκνοτέιραν,
Νηυσί τε ποντοπόροισι βαρυγδούποιο θαλάσσης.

Jo. Evelyn, Jun.

A

TABLE

Of the

CHAPTERS.

SYLVA.

CHAP.		Pag.
	Introduction	
1	*Of the Soil and Seed.*	6
2	*Of the Seminary.*	9
3	*Of the Oak.*	14
4	*Of the Elm.*	28
5	*Of the Beech.*	35
6	*Of the Aſh.*	38
7	*Of the Cheſs-nut.*	41
8	*Of the Wall-nut.*	44
9	*Of the Mulbery.*	57
10	*Of the Service.*	62
11	*Of the Maple.*	63
12	*Of the Sycamore.*	66
13	*Of the Horn-beam.*	67
14	*Of the Lime-tree.*	68
15	*Of the Quick beam.*	70
16	*Of the Birch.*	71
17	*Of the Haſel.*	78
18	*Of the Poplar, Aſpen and Abele.*	80
19	*Of the Alder.*	83
20	*Of the Withy, Sallow, Ozier, and Willow.*	85
21	*Of Fences, Quick-ſets,* &c.	93
22	*Of the Fir, Pine, Pinaſter, Pitch-tree,* &c.	103
23	*Of the Larch, Platanus, Lotus, Cornus,* &c.	113
24	*Of the Cypreſs-tree, and Cedar.*	115
25	*Of the Cork, Ilex, Alaternus, Phillyrea, Granad, Lentiſc, Olive, Myrtil, Jaſmine,* &c.	121
26	*Of the Acacia, Arbutus, Bays, Box, Engh, Holly, Juniper, and Laurel-trees.*	125
27	*Of the Infirmities of Trees.*	133
28	*Of Copſes.*	138
29	*Of Pruning.*	141
30	*Of the Age, Stature, and Felling of Trees.*	147
31	*Of Timber, the Seaſoning and Uſes, and of Fuel.*	178
32	Aphoriſms, *or certain general* Præcepts, *of uſe to the foregoing* Chapters.	202
33	*Of the* Laws *and* Statutes *for the* Preſervation *and* Improvement *of* Woods, &c.	205
34	*The Paræneſis and Concluſion, Containing ſome encouragements and Propoſals for the Planting, and Improvement of his Majeſties Foreſts.*	212
35	*An Hiſtorical account of the Sacredneſs, and uſe of ſtanding Groves.*	225

POMONA.

CHAP. Pag.

The Preface. 1

1 *Of the Seminary.* 7

2 *Of Stocks.* 10

3 *Of Graffs and Inſitions.* 11

4 *Of Variety and Improvements.* 13

5 *Of the Place and Order.* 20

6 *Of Tranſplanting and Diſtance.* 21

7 *Of Fencing.* 22

8 *Of Pruning and the uſe of Fruit-trees.* 24

CIDER.

General Advertiſements concerning Cider *by Dr.* Beale. 39

Sir Paul Niele's *Diſcourſe of Cider.* 39

Obſervations concerning the making and Preſerving of Cider, by John Newburgh, *Eſq.* 52

Concerning Cider, by Dr. Smith. 58

Of Cider, by Capt. Taylor. 59

An Account of Perry *and* Cider *imparted by* Daniel Collwall *Eſq;* 63

Another Account of Cider, &c. 65

KALENDARIUM HORTENSE.

Introduction. p. 5

January. 8, 9

February. 10, 11

March. 12, 13

April. 14, 15

May. 16, 17

June. 18, 19

July. 20, 21

Auguſt. 22, 23

September. 24, 25

October. 26, 27

November. 28, 29

December, 30, 31

The Catalogue *of* Plants, *&c. to be ſet into the* Conſerve, *or otherwiſe defended in* Winter. 32, 33.

The

The TABLE to

SYLVA.

Note, that the *first Letter* viz. (*c.*) denotes the *Chapter*; the *Second* viz. (*ſ.*) the *Section*.

Abeel Cap. 6, *Sect.* 2, *c.* 18, *ſ.* 5, *c.* 34, *ſ.* 20.
Ablaqueation *c.* 20, *ſ.* 29.
Abraham *c.* 35, *ſ.* 2, 5. vide *Patriarch.*
Abuſe *c.* 35, *ſ.* 5.
Acacia *c.* 26, *ſ.* 1.
Acorns *c.* 1, *ſ.* 3, *c.* 3. *ſ.* 1, 3, 16, 17, *c.* 21. *ſ.* 13, *c.* 25. *ſ.* 4, *c.* 28, *ſ.* 2. *c.* 30. *ſ.* 12, *c.* 33, *ſ.* 2, *c.* 34, *ſ.* 21. v. *Æſculus.*
Æquinox *c.* 32, *ſ.* 3.
Æſculus *c.* 25, *ſ.* 5.
Agaric *c.* 33, *ſ.* 1.
Age *c.* 28, *ſ.* 2, 5, *c.* 29, *ſ.* 4, *c.* 30. *ſ.* 1, 2, 3, 4, 7, 12, 18, 19, *c.* 31, *ſ.* 12, *c.* 34, *ſ.* 15, 21, *c.* 35, *ſ.* 2, 14. vide *ſtature.*
Alaternus *c.* 25, *ſ.* 6, 9.
Albumen *c.* 22, *ſ.* 15.
Alburnum vide *Sap.*
Alder *c.* 16, *ſ.* 10, *c.* 19, 28, *ſ.* 1, *c.* 31, *ſ.* 15, 30. *c.* 32, *ſ.* 19, *c.* 34, *ſ.* 2.
Ale *c.* 15, *ſ.* 2, *c.* 16, *ſ.* 4.
Allegories *c.* 34, *ſ.* 21.
Aliment *c.* 30, *ſ.* 1.
Alkermes *c.* 25, *ſ.* 5.
Almonds *c.* 17, *ſ.* 3.
Almugim *c.* 22, *ſ.* 15.
Altar *c.* 35, *ſ.* 8.
Alum *c.* 31, *ſ.* 7.
Amber *c.* 18, *ſ.* 7.
Amerine *c.* 20, *ſ.* 1.
Anealing *c.* 31, *ſ.* 31.
Angler *c.* 22 *ſ.* 5.
Angleſey *c.* 22, *ſ.* 13.
Animals *cap.* 30, *ſect.* 3, 20.
Antidots *c.* 8, *ſ.* 4,
Antients *c.* 29, *ſ.* 1.
Ants v. *Piſmires.*
Aphoriſmes *c.* 32, *ſ.* 1.
Apothecary *c.* 20, *ſ.* 29.
Apparitions *c.* 35, *ſ.* 5.
Apples *c.* 30, *ſ.* 2. v. *Fruit.*
Approach *c.* 25, *ſ.* 10. v. *Graffing.*
Aquatical Introduct. *ſ.* 5. v. *Water.*
Aquæducts *c.* 19, *ſ.* 5, *c.* 30, *ſ.* 36, *c.* 31, *ſ.* 15, *c.* 33, *ſ.* 2. vide Water-Works.
Arborator v. *Pruner.*
Arbours *c.* 13, *ſ.* 3. *c.* 25, *ſ.* 20.
Arbutus *c.* 26, *ſ.* 1. *c.* 32, *ſ.* 19.
Arke *c.* 24, *ſ.* 13, *c.* 30. *ſ.* 12, *c.* 31. *ſ.* 15, 17, 23.
Armes *c.* 29, *ſ.* 2, 6.
Army *c.* 34, *ſ.* 26.
Art *c.* 29, *ſ.* 5. *c.* 31, *ſ.* 1.
Aſh *c.* 3, *ſ.* 8, *c.* 6, 8, *ſ.* 4, *c.* 16, *ſ.* 10, *c.* 21, 6, 9, 12, *c.* 22, *ſ.* 15, *c.* 28, *ſ.* 2, 3, *c.* 29, *ſ.* 10, *c.* 30, *ſ.* 3, 20, 30, 36, *c.* 31, *ſ.* 12, 15, *c.* 32, *ſ.* 19, *c.* 34, *ſ.* 23.
Aſhes *c.* 3, *ſ.* 17, *c.* 5, *ſ.* 2, *c.* 7, *ſ.* 5, *c.* 8, *ſ.* 1. *c.* 31, *ſ.* 25.
Aſhtaroth *c.* 35, *ſ.* 6.
Aſpect *c.* 3, *ſ.* 6, 7, 8, *c.* 16, *ſ.* 6, *c.* 21, *ſ.* 11, *c.* 22, *ſ.* 2. *c.* 32, *ſ.* 5, *c.* 34, *ſ.* 9. v. *Situation, Climat.*
Aſpen *c.* 18. *ſ.* 4, *c.* 28, *ſ.* 3.
Aſſarts *c.* 33, *ſ.* 9.
Aſylum *c.* 35, *ſ.* 8.
Atch *c.* 21. *ſ.* 16.
Athenians

Athenians c.35, ſ.12.
Avarice c.35, ſ. 18.
Avenues c. 2. ſ.7, c.4, ſ.6,7, c.7, ſ.4, c.8, ſ. 3, c.9, ſ.9, c.12, ſ.1. c. 23, ſ.2, c. 26, ſ.23, c.29, ſ.6. c.34, ſ.9, 21.
Auguſtin St. c.35, ſ. 5.
Axe c 29, ſ.2, c.30, ſ 29.
Axel-tree c.25, ſ.5, c.26, ſ.6,8.
Ayre, c.3, ſ.8, c.11, ſ.1, c.14. ſ.1, c.21, ſ. 16, c.22, ſ.5, c.24, ſ.6, 13, 16, c. 25, ſ. 2, c.29, ſ.4,5, c.30, ſ.1,35, c.31, ſ.13,18, c.32, ſ.9.

B

Baking c. 31, ſ.23.
Bands c.17, ſ.5, c.20, ſ.2, 17, c.21, ſ.19.
Banks c. 19, ſ. 2, c. 28, ſ. 1. v. *Mounds.*
Bark c.3, ſ.6,7,16, 17, c.4, ſ. 5, c.18, ſ. 2, c.26, ſ.17, c.27, ſ.4, 5, 6,7, c. 29, ſ.3,10, c.30, ſ.3,19, 20,32,33, 35, c. 31, ſ. 15, 30, c.32, ſ.17, c.35, ſ.12.
Barly c .21, ſ.22.
Barrells c 22, ſ.15.
Barrs c.22, ſ.15, c.26, ſ.17. c.31, ſ. 15. v. *Bolts, Dores.*
Baſilidians c.35, ſ.6.
Basket-maker. c. 14, ſ.4, c. 16, ſ.2, c.20, ſ.4,17.
Bavin c. 3, ſ. 17, c. 20, ſ. 29, c.21, ſ.9, c.30, ſ.23.
Bayes c.26, ſ.3.
Bead-tree. c. 26 ſ.22.
Beams c.7, ſ.5, c.8, ſ.4, c.22. ſ.15, c.23, ſ.1, c.26, ſ.21, c.31. ſ.1,6,7, 8, 15,19.
Beds c.5, ſ.2, c.7, ſ.5, c.20, ſ.30, c.25, ſ.2, c. 26, ſ.22. v. *Shade.*
Beech c.5, 16, ſ.10, c.21, ſ.9,12, 14, c.28, ſ.3, c.30, ſ. 5, 36, c.31, ſ.11, c.32. ſ.19, c.33. ſ.14.
Bees c.4, ſ.15, c. 5, ſ. 2, c. 18, ſ.8, c.20, ſ.8, 29, 30, c.21, ſ.22, c.25, ſ.7, c. 26, ſ.5.
bellows c.5, ſ.2, c.18. ſ.8.
belly c.9, ſ.9.
benches c.26, ſ.22.
benefits c.35, ſ.14.
berberies c.21, ſ. 11.
beere c.22, ſ.15, c.28, ſ.10.
bermudas c.24, ſ.16.
bernacles c.31, ſ.25.
berrys c.10, ſ.1, c.14, ſ.1, c.15, ſ.2, c.23, ſ.4, c. 25, ſ.14, c. 26, ſ.3, 14, 18, 21, 26.
beetels c.25. ſ.5.
beſts c.28. ſ.3, v. *Copſe.*
billet c.3, ſ.17, c. 28, ſ. 9, c. 31, ſ.24, 26, 27.
binding c.24, ſ.6, v. *Girding*
birch c.16, 21, ſ. 14, c.28, ſ. 1. c. 30, ſ.36, c. 31, ſ. 15, c. 34, ſ. 20.
birds c.22, ſ.2, c.30, ſ. 36, c. 34, ſ.7.
bird-Lime c.26, ſ.28.
birth c.35, ſ.14.
biſcay c.25, ſ.1, c.33. ſ.15.
black v. *Colour*
black-Thorn v. *Thorn.*
blanching c.8. ſ.4.
blaſt c.27. ſ.5.
blocks c.4, ſ.15, v. *Pullies, Shivers.*
bloſſom c. 14, ſ. 2, 4, c. 15, ſ.2, c.26. ſ 21, c.32, ſ. 19, c.35, ſ.21, v. *Flower.*
blood c.7, ſ. 6.
bleeding c.22, ſ.6.
boards c.18, ſ.2, c.23, ſ.1, c. 30, ſ.15, c.31, ſ.3, v. *Planks.*
boaring c.30, ſ.24, 36, c.31. ſ.5.
boates c.19, ſ.4, c.20, ſ.17, c.31, ſ. 6, 9, 10.
bobbins c.26, ſ.6.
boggs c.18, 19, ſ.1, 2, c.20, ſ.10, 26, c.22, ſ.13, c.24, ſ.14, c.28, ſ. 1, c. 31, ſ.15, v. *Aquatic.*
bolts c.20, ſ.18, v. *barrs, dores.*
bones c.4, ſ.15, c.6. ſ.4.
books c.5. ſ.1.
bordurers c.29, ſ.2.
bottles c.14, ſ.4.

boughs

Boughs c.29, ſ.4, 5, 6.
boundaries c. 28, ſ. 7, c.34, ſ. 3, 4, 5.
bowls c.26, ſ.8, 17.
bows c 4, ſ.5 c.9, ſ.1, c. 10, ſ.2, c.15, ſ.2, c.26, ſ.8.
box c 3, ſ.17, c.21, ſ. 16, c.22, ſ. 15, c. 26, ſ. 5, 10, c. 30, ſ.1, c.31, ſ.3, 15, c.32, ſ.19.
boxes c. 5, ſ. 2, c.14, ſ. 4, c. 20, ſ.29, c.21, ſ.10, c 22, ſ.15.
bracmani c.35, ſ.10.
brambles c.21, ſ.7, c.31, ſ. 24, 37.
branches c.14, ſ.1.
braſile c.31, ſ.12.
bread c.5, ſ.2, c.7, ſ.5.
bridg c. 24, ſ.13, c.31, ſ.7.
broomes c.16, ſ.2, c.17, ſ.5, c.18, ſ.8, c.21, ſ.14, 15, c. 28, ſ. 10, c.22, ſ.19.
browſe c.28, ſ.5, c. 29, ſ.4, 6, c.31, ſ. 23.
bruſcum c.11, ſ.2.
bruſh c.28, ſ.4, c.31, ſ.34, vide *bavin*.
budds c.27, ſ.21, c.29, ſ. 1, 6, c. 30, ſ.20, c.32, ſ. 12.
bucklers c.31, ſ. 15, v. *Targets*.
building c.3, ſ.17, c.19, ſ.4, c.31, ſ.19, c.35, ſ.18.
burning c.33, ſ.5.
burying c.31, ſ.3, v. *Sepulture*.
buſhing c.3, ſ.12.
button-moulds c.31, ſ.3.
buyer c.30, ſ.32, c.31, ſ.16. c.33. ſ.16.

C.

Cabinets c. 6, ſ. 3, c. 7, ſ.4, c.8, ſ.1, 4, c.11, ſ. 2. c.21, ſ.22, c.26, ſ. 6, c.31, ſ.34, 35.
Cablicia c.32, ſ.19, v. *Laws*.
Caffè c.16, ſ.10.
Cages c.20, ſ.17.
Calves c.28, ſ.8.
Canaries c.26, ſ.22.
Candles c.13, ſ.2, c. 22, ſ.11, 16.
Candy c.24, ſ.12.
Canker c.27, ſ.12.
Canns c.20, ſ.29.
Canoos c. 30, ſ.6.
Carbuncle c.35, ſ.17.
Carduus c.28, ſ. 9.
Carkaſi c.31 ſ 19, vide *Frame*.
Carpenter c.6, ſ.4, c. 7, ſ. 5, c.9, ſ.1, c.26, ſ.22, c.30, ſ.33, c 31, ſ. 19.
Cart } *Wright* c. 12, ſ. 2, c.18,
Cart- } ſ. 8, c. 20, ſ. 29, c.22, ſ. 15, c. 28, ſ. 4.
Carving. c.4, ſ. 15, c. 14, ſ. 4, c.18, ſ. 2, c.22, ſ.15, c.31, ſ.4, vide *Graver, Sculptor*.
Cask c.7, ſ.5, c.20, ſ.19.
Caſt c.31, ſ.26, vide *Billet*.
Caſtle c. 30, ſ.7.
Cattel c.3, ſ.7, 12, 17, c.4, ſ.11, 15, c. 6, ſ.4, c.9, ſ. 9, c. 18, ſ.2, c. 20, ſ.21, 26, c.21, ſ.9, 10, 22, c.26, ſ. 9, 13, 14, 20, c.27, ſ.7, 21, c.28, ſ. 4, 7, c. 29, ſ.8, 9, c.31, ſ.23, c. 33, ſ. 6, 7, 8, 17, 11, c.34, ſ.18, 19, 23, 26, vide *Fodder, Cropping*.
Caterpillar c. 27, ſ. 20.
Catholicon c. 21, ſ. 16.
Cato c. 24, ſ. 5.
Cæſar c. 35, ſ.17.
Cedar c.22, ſ.15, c.24, ſ. 3, 14, c. 26, ſ.19, c.30, ſ. 6, 12, c.31, ſ.15.
Ceiling c.31, ſ.16, vide *Lathes*.
Celaſtrus. c. 25, ſ. 13.
Chalk c.5, ſ. 1, c.8. ſ. 2.
Chapell c. 30, ſ. 6.
Chapman vide *Buyer*.
Chaſes vide *Parks*.
Chaſtity c.20, ſ.8.
Chaucer c. 30, ſ. 12.
Chayres c. 20, ſ. 17, c. 25, ſ. 5.
Chequers c. 10, ſ.1.
Cherry-trees c. 35, ſ. 12, c. 7, ſ.4, c.21, ſ.22, c. 24, ſ.2, c.26, ſ.25. c.33, ſ.14.
Cheſs-Shire c. 22, ſ.13.
Cheſſe-Nutts c. 5, ſ.1. c. 7. ſ. 4.

c.8, ſ.1, c.28, ſ. 1, 2, 6, c.30, ſ.7, c.31, ſ.15, c.32, ſ.19.
Cheſſe-men c. 26, ſ.6.
cheſts c. 24, ſ. 16, c. 26, ſ. 21,
chezill c. 29, ſ. 2, vide *Tools.*
chimny c. 31, ſ. 23, vide *Fire, Fuell.*
chipps c.4, ſ.3, c.22, ſ.15, c. 26, ſ. 21, c. 28, ſ. 7.
choaking c.32, ſ.35.
choppines c.25, ſ.2.
church c. 17, ſ. 5, c. 35, ſ. 12, vide *Sepulchres.*
church-yards c. 29, ſ.6.
chymiſts c.31, ſ. 29.
cinnamon c.26, ſ.22.
circles c.3, ſ.6, c.16, ſ.4, 5. c.35, ſ. 3.
citrin c.8, ſ.2, c. 11, ſ.1, 2, vide *Tables.*
cities c.35, ſ.10.
clay c.1, ſ. 1, c. 3, ſ.5, c. 22, ſ.3, c.27, ſ.8, c.30, ſ. 12, c.31, ſ. 8, c. 32, ſ. 8, 15.
clap-board c. 3, ſ.17.
clearg c. 28. ſ.2.
cleaving c. 31, ſ. 2.
cleft-wood c.31, ſ.27.
climat c.3, ſ.4, c. 22, ſ. 5, c.26, ſ.22. vide *Aſpect, Situation.*
clipping c. 9, ſ. 11, c.21, ſ.8, 14, c.24, ſ.6, 7, c.25, ſ.9.
clothes c.26, ſ.22.
cloves c.26, ſ.22.
coaches c.8, ſ.4, c.20, ſ.17, c.22, ſ.15.
coales c.3, ſ.17, c.4, ſ.15, c. 6. ſ.4, c.7, ſ.5, c.14, ſ.4, c.16, ſ.2, c.17, ſ.5, c. 18, ſ. 8, c.29, ſ.5, c.20, ſ.15, 29, c.22, ſ.16, c.23, ſ.1, c.25, ſ.5, c.26, ſ.2, 21, c.28, ſ.9, c.23, ſ.11, 15, c.31, ſ.4, 23, 24, 25, 26, 29, 30, 31.
coating c. 31, ſ.7, vide *Preſerving.*
cocco c.16, ſ.7.
coffin c. 24, ſ.12, 13, c. 25, ſ. 2.
cold c.24, ſ.7, c.25, ſ. 11, c. 30, ſ.25, c.32, ſ.19.
College c.35, ſ.10.
Collique c.26, ſ.21, vide *Stone.*
Colts c.28, ſ. 8.
Column c. 3, ſ. 17, c. 30, ſ. 36, c.31, ſ.5, 15. vide *Poſts.*
Combs c.21, ſ. 10, c. 26, ſ.6.
Common c. 28, ſ. 8, c. 33, ſ. 7, vide *Incloſure.*
Compoſt c. 1, ſ.4, c. 7, ſ. 1, c. 8, ſ. 1, c.9, ſ.8, c.22, ſ. 4, 9, c. 25, ſ. 10, c. 26, ſ. 15, 20.
Concretions c. 31, ſ.20.
Cones c. 22, ſ. 1, 4, c. 24, ſ. 1, vide *Nuts.*
Conflagration c. 35, ſ. 2, vide *Burning.*
Connies c.21, ſ.1, c.27, ſ.7.
Conſecration c.35, ſ.14.
Conſerve c.25, ſ.11.
Conſort c. 29, ſ.10.
Conſul c. 32, ſ. 29, vide *Officers.*
Conſumption c.10, ſ.2, c.16, ſ.8.
Contemplation c. 35, ſ. 10, 20.
Contemplores c.25, ſ.2.
Contexture c.30, ſ.1.
Converſion c. 35, ſ.5.
Cooming c.31, ſ.31.
Cooper c.3, ſ. 17, c. 6, ſ.4, c. 9, ſ.1, c.17, ſ.5, c. 20, ſ. 18, 19, 24.
Coorbs c. 29, ſ. 5.
Copſes c.3, ſ.8, 16, c.7, ſ.2, c.16, ſ.1, c.17, ſ. 3, 4, 5, 6, c.18, ſ. 1, 2, c. 20, ſ. 14, 26, c. 24, ſ. 6, c.28, ſ.1, c.31, ſ.31, c.33, ſ.14, 15, c.34, ſ.14.
Cormiere c. 10, ſ.1, c.32, ſ.19.
Cord c.28, ſ.9, c.30, ſ.15, c.31, ſ. 29. vide *Stack.*
Cordial c.16, ſ.8.
Corke c.25, ſ.1.
Corne c.1, ſ.1, c.9, ſ.4, c.20, ſ.24, c. 21, ſ.2, 14, c.34, ſ.19.
Corn-Lands c.4, ſ. 9, c.6, ſ.3, c. 8, ſ.2.
Cornel c.21, ſ.11, 19, c.23, ſ.4, c.30, ſ.3, c.31, ſ.15.
Cornwall c.22, ſ. 13, c.34, ſ.18.

Custom c.29, ſ.10, c. 33, ſ. 14, vide *Laws.*
cottages c.17, ſ.5.
cotton c. 20, ſ.8.
cough c.7, ſ.5, c.26, ſ.21.
couler c.4, ſ. 15, c.31, ſ.12, 34, 35, c.32, ſ.19.
counter-ſcarp c. 31, ſ.6.
court c.31, ſ.29, 30.
cow-dung c.31, ſ.5, 23.
crab-tree c.31, ſ.7, 9, 10.
cracks c.8, ſ.4, c.31, ſ. 34, vide *clefts.*
cranes c. 30, ſ. 36. vide *Engines.*
creation c.30, ſ.4.
cropping c.20, ſ. 1, 2, vide *cattel.*
croſſe c.3, ſ.17.
cudgels c.17, ſ. 5, vide *Staves.*
cumberland c.22, ſ.13.
cup-board c.26, ſ.22.
cupps c.25, ſ.2, c.27, ſ.9.
curioſity c. 26, ſ.12.
currier c.19, ſ.5.
cuſhions c.20, ſ.8.
cutting c.3, ſ.13, c.9, ſ.5, c.17, ſ.3, c.18, ſ. 6, c.19, ſ. 3, c.20, ſ. 18, 23, 26, c. 21, ſ. 7, c.24, ſ.6, c.25, ſ.21, c.26, ſ. 26, c.28, ſ.7, c.29, ſ. 2, 3, 6, c.32, ſ.19. vide *Felling.*
cyder c. 21, ſ.22.
cyon c.29, ſ.6.
cypreſſe c.22, ſ.9, 15, c. 24, ſ.1, 5, c. 26, ſ. 20, c. 27, ſ.15, 16, c.30, ſ.4, 30, c.31, ſ.15, c. 35, ſ. 8.

D

Damaſco, vide *Plum.*
Damasking, vide *Grain.*
Darts c.21, ſ.15.
Deafneſſe c. 6, ſ. 4, vide *Eares.*
Dean-Forreſt. c.32, ſ.6, 12, c.34, ſ.3, 21, 28, vide *Foreſt.*
Deaw c. 22, ſ. 13, c. 30, ſ. 34, c.31, ſ.23, vide *Dottards.*
Decay c.30, ſ.1, 2, 24, c.34, ſ.15, 28.
December c.29, ſ.4.
Decortication c. 25, ſ. 1, vide *cork.*
Dedication c.35, ſ.2.
Deere c. 5, ſ.2. c. 29, ſ.9, c.33, ſ.10, vide *Game.*
Defence c. 22, ſ. 2, c. 35, ſ.17.
Delphos c. 35, ſ 7.
Deluge c.22, ſ.13.
Depth c.3, ſ.6, c.32, ſ.8.
Diameter vide *Dimenſion.*
Dictionary c.32, ſ.19.
Dimenſion c 30, ſ. 1, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18. vide *Stature, Age.*
Disbranch c. 4, ſ. 14, c. 6, ſ.2, c.8, ſ.1, c.22, ſ. 6, c. 30, ſ.28, 32, c.31, ſ.23. vide *Prune.*
Diſchargers c.31, ſ.19.
Diſhes c.31, ſ.35.
Diſeaſe, vide *Infirmities.*
Diſtance c.2, ſ.7, c.3, ſ.2, 3, 11. c.4, ſ.6, c.6, ſ. 3, c. 7, ſ.3, c. 9, ſ.3, 4, c. 14, ſ. 2, 4, c. 17, ſ.2, c.18, ſ.6, c. 19, ſ. 2, 6, 9, 26, c.21, ſ.9, c. 22, ſ. 2, c. 28, ſ.1, c.33, ſ. 2, c. 34, ſ. 2.
Diſtillation c. 16, ſ. 5.
Diſtraction c.35, ſ.10.
Diſtribution *Introd. Sect. 3.*
Ditching c. 21, ſ. 6, 9, vide *Hedg.*
Divination c.17, ſ.5.
Diviſion c.28, ſ.2, c.33, ſ. 16.
Diüretic c.16, ſ.10.
Docks c. 21, ſ.7.
Dodona c. 35, ſ. 7, 15, vide *Groves.*
Doggs c.34, ſ.16.
Dores c.4, ſ.15, c.22, ſ.15, c.23, ſ.1, c.24, ſ.13, c.26, ſ.17, c.31, ſ. 4, 8, vide *Gates.*
Dorſars c.20, ſ.29.
Dotards c. 4, ſ. 14, c. 20, ſ.26, c.29, ſ.6, c. 31, ſ. 23, vide *decay.*
Downs c.34, ſ.23.

Drain

Dram c. 22, ſ. 2, vide *Firr.*
draining c. 19, ſ. 5,
dreams c. 35, ſ. 7.
dreeſſars c. 4, ſ. 15, c. 5, ſ. 2.
dreſſing c. 9, ſ. 3, c. 20, ſ. 11, 22, 24, c. 29, ſ. 5.
drink c. 21, ſ. 22, c. 22, ſ. 15, c 31, ſ. 37.
dripping c. 22, ſ. 1, c. 28, ſ. 6, c. 34, ſ. 14, vide *Shade.*
dropſy c. 21, ſ. 16, c. 26, ſ. 21.
druids c. 30, ſ. 8, c. 35, ſ. 2, 9. vide *Dryad.*
drumms c. 8, ſ. 4.
dryad vide *druids.*
dry-trees *Introduct.* 4.
duration c. 31, ſ. 3, 15. vide *Age.*
duſt c. 32, ſ. 3.
dwarfs c. 29, ſ. 6.
dyes c. 3, ſ. 17, c. 8, ſ. 4, c. 19, ſ. 5.
dyſſenterie c. 10, ſ. 2.

E.

Ebony c. 3, ſ. 14, c. 6, ſ. 3, c. 22, ſ. 15, c. 31, ſ. 15, 34, vide *Poliſhing.*
eares c. 10, ſ. 2, c. 18, ſ. 8, vide *deafneſſe.*
eare-wigs c. 27, ſ. 15, vide *Inſects.*
earth *Introduct.* §. 7.
eaſt c. 31, ſ. 15, c. 32, ſ. 13, vide *Winds.*
eights c. 20, ſ. 24.
elder c. 3, ſ. 17, c. 16, ſ. 10, c. 21, ſ. 9, 15, c. 30, ſ. 20, c. 31, ſ. 15, 37, c. 32, ſ. 19.
electuary c. 26, ſ. 21.
elme c. 3, ſ. 5, c. 4, 16, ſ. 10, c. 21, ſ. 6, 12, c. 27, ſ. 13, c. 28, ſ. 3, c. 29, ſ. 2, 3, c. 30, ſ. 11, c. 31, ſ. 15, 26, c. 32, ſ. 19, c. 34, ſ. 9, 15, 24.
elogies c. 31, ſ. 36.
eliſium c. 35, ſ. 10.
emulſions c. 22, ſ. 15.
Encloſures c. 33, ſ. 7, c. 34, ſ. 3, 5.
encouragements c. 34, ſ. 22.
encroachments c. 34, ſ. 5.
engines c. 3, ſ. 9, c. 31, ſ. 22, vide *Cranes.*
enthuſiaſme c. 35, ſ. 6, 7.
enzina c. 25, ſ. 1, 3.
eriſichthon c. 35 ſ. 15.
errors c. 24, ſ. 5.
eſpaliers c. 6, ſ. 2, c. 18, ſ. 2, c. 20, ſ. 2, c. 25, ſ. 9.
eſſex c. 31, ſ. 29.
eſtovers c. 33, ſ. 14, vide *Laws.*
eternity c. 24, ſ. 17, c. 30, ſ. 4.
eugh.
evonymus c. 32, ſ. 19.
excrements c. 30, ſ. 3.
excreſcences c. 3, ſ. 17, c. 27, ſ. 9.
exotics c. 26, ſ. 22.
experiment c. 29, ſ. 5, c. 31, ſ. 20.
extirpation c. 31 ſ. 22, vide *Roots.*
extravagance c. 31, ſ. 28.
eyes c. 18, ſ. 8.

F

Faggots c. 21, ſ. 19, c. 18, ſ. 9, c. 31, ſ. 27, 28, 31, vide *Bavin.*
famine c. 6, ſ. 4.
farcy c. 16, ſ. 10, vide *Horſe.*
farmer c. 34, ſ. 23.
father c. 30, ſ. 20.
faunus c. 35, ſ. 6.
feaſts c. 30, ſ. 7.
feavor c. 20, ſ. 29, c. 21, ſ. 16.
february c. 27, ſ. 20, c. 29, ſ. 4.
felling c. 3, ſ. 13, 15, c. 4, ſ. 14, c. 6, ſ. 4, c. 17, ſ. 4, c. 19, ſ. 1, 3, c. 28, ſ. 2, 3, 4, 7, 8, c. 29, ſ. 6, c. 30, ſ. 1, 23, 24, 25, 26, 27, 28, 31, 34, 36, c. 31, ſ. 1, 3, 23, c. 32, ſ. 7, c. 33, ſ. 7, 8, 9, 14, 16, 17, c. 34, ſ. 23, c. 35, ſ. 4, 15, vide *Cutting.*
femal c. 22, ſ. 2, 4, vide *Sex.*
fences c. 4, ſ. 12, c. 6, ſ. 2, c. 20, ſ. 6, 7, c. 21, ſ. 1, 3, 6, 10, 13, 16, 20, c. 28, ſ. 4, 7, c. 29, ſ. 5, 10, c. 32,

c. 32, ſ. 13, c. 33, ſ. 14, c. 34, ſ. 3, 5, 6, 7, 8, 24.
fermentation c. 16, ſ. 4.
fern c. 27, ſ. 3.
feet c. 20, ſ. 16, c. 24, ſ. 2, c. 30, ſ. 5, 7.
fibers c. 3, ſ. 6, c. 24, ſ. 2.
figues c. 20, ſ. 16, c. 24, ſ. 2, c. 30, ſ. 5, 7.
filberts c. 17, ſ. 3.
fire c. 24, ſ. 12, c. 31, ſ. 1, 3, 4, 7,
fire-boot c. 31, ſ. 33.
firr c. 2, ſ. 8, c. 12, ſ. 2, 7, 8, 9, 12, 13, 14, c. 22, ſ. 15, c. 33, ſ. 1, c. 24, ſ. 4, c. 30, ſ. 27, c. 31, ſ. 3, 9, 13, 15, 17, 34, c. 34, ſ. 7.
firſts c. 28, ſ. 3, vide *Copſes.*
fiſhers c. 5, ſ. 2, c. 25, ſ. 2.
flanders c. 34, ſ. 17.
flayle c. 26, ſ. 17.
flesher c. 15, ſ. 2, c. 16, ſ. 2.
flexures c. 29, ſ. 10, vide *Crooks, Knee-Timber.*
flints c. 34, ſ. 23, vide *Stones.*
floating c. 31, ſ. 9.
floores c. 22, ſ. 15, c. 31, ſ. 3, 4.
flowers c. 8, ſ. 4, c. 16, ſ. 2, c. 20, ſ. 18, 29, c. 25, ſ. 10, c. 31, ſ. 31, c. 32, ſ. 19. vide *Inlayer.*
fluviari Arborem, c. 30, ſ. 11.
flux c. 3, ſ. 17, c. 10, ſ. 2, c. 26, ſ. 18.
flys c. 21, ſ. 16.
foggs c. 3, ſ. 8.
food c. 8, ſ. 4.
foreſts c. 29, ſ. 5, 9, c. 34, ſ. 1, 2, 12, c. 24, ſ. 3, 28.
forges vide *Iron-mills.*
forks c. 17, ſ. 5, c. 20, ſ. 29.
fortifications c. 21, ſ. 6.
foundations c. 33, ſ. 2.
fountains c. 35, ſ. 5.
fowle c. 34, ſ. 23.
fracture c. 4, ſ. 15.
frames c. 31, ſ. 34, 35.
framing c. 31, ſ. 19, vide *Carkaſſes.*
france c. 25, ſ. 1, c. 34, ſ. 16.
french-Pox c. 26, ſ. 6.
fretters c. 29, ſ. 4, vide *Galling.*
friction c. 27 ſ. 9.
fritters c. 7, ſ. 5.
frondation c. 29, ſ. 8, vide *Leaves.*
froſt c. 2, ſ. 3, c. 6. ſ. 2, c. 17, ſ. 2, c. 26, ſ. 18, c. 32, ſ. 9, 15.
fruit-trees c. 3, ſ. 3, c. 9, ſ. 9, c. 21, ſ. 12, 21, 22, c. 26, ſ. 9, c. 29, ſ. 4, 5, 6, c. 30, ſ. 2, 33, c. 33, ſ. 2, 14, c. 24, ſ. 24, 25.
fruit c. 30, ſ. 25, 30, c. 31, ſ. 15. 18, c. 35, ſ. 21.
fruiterer c. 20, ſ. 24, 29.
fuel c. 3, ſ. 13, c. 5, ſ. 2, c. 6, ſ. 4, c. 9, ſ. 9, c. 11, ſ. 1, c. 13, ſ. 2, c. 15, ſ. 2, c. 16, ſ. 2, c. 17, ſ. 5, c. 18, ſ. 8, c. 19, ſ. 5, c. 20, ſ. 13, 26, c. 21, ſ. 14, 15, c. 22, ſ. 3, c. 25, ſ. 5, c. 28, ſ. 1, 8, 9, 10, c. 29. ſ. 5, c. 31, ſ. 23, 32.
fungus c. 27, ſ. 3.
furniture c. 26, ſ. 22, vide *Utenſils.*
furrz c. 21, ſ. 13, 14.

G

Galling c. 27 ſ. 12, vide *Fretters.*
Galls c. 3, ſ. 17.
Gamæ c. 35, ſ. 2.
Gangreen c. 27, ſ. 12.
Gapps c. 20, ſ. 9, c. 29, ſ. 9, vide *Hedges.*
Garden c. 6, ſ. 4, c. 9, ſ. 10, c. 12, ſ. 1, c. 20, ſ. 15, 18, 24, 28, c. 21. ſ. 8, c. 26, ſ. 1, c. 30, ſ. 35, c. 35, ſ. 10, 13.
Gargle c. 3, ſ. 17.
Garlick c. 27, ſ. 17, 20,
Gates c. 30, ſ. 7, vide *Dores.*
Gathering c. 8, ſ. 4, c. 9, ſ. 11. c. 22, ſ. 4, c. 26, ſ. 22.
Gelſter c. 20, ſ. 19.
Generation c. 30, ſ. 30.
Genius c. 35, ſ. 14.
Germany c. 31, ſ. 23, c. 33, ſ. 9, 16.

Ghosts c.35, s.13,
Girding c.22, s. 16, c. 30, s.33, vide *Binding, Measure.*
Glass c.5, s.2, c.34, s. 12. *Glass-Work.*
Glue c.3, s.17, c.22, s. 15, c.31, s.35.
Gnatts c.24, s.13,
Goates c.21, s.1, c.27, s.12.
Gold c.31, s.1.
Golden-Age c.25, s.5.
Gold-Smith c. 20, s. 29, c. 26, s. 2.
Gold-Stone c.20, s.19.
Gopher c.24, s.13.
Gowt c.26, s.21.
Graffing *Intr.* 7, c. 3, s. 5, c. 4, s.13, c.6, s.2, c.7, s.4, c.8, s.1, 4, c. 9, s. 6, c.10, s.1, c. 17, s. 3, c.20, s.16, 21, 26, c.21, s.7, 22, c.26, s.2, 25, c.30, s.30, c.34, s.9, 23.
Grain c.3, s.4, c.11, s. 1, 2, c.16, s.2, vide *Damasking.*
Granad c.25, s.10.
Grasse c.19, s.2, vide *Grazing, Pasture.*
Gravel c.3, s.5, c.10, s.2, c. 16, s.8, c.22, s.2, 9, c. 26, s. 4, 14, 21, c.30, s.12, vide *Stone.*
Grazing c.28, s.1, 8.
Grease c. 31, s.5.
Green vide *Couler*, c.31, s.34.
Green-sickness c.20, s.2.
Green-timber c.30, s.1, 4, 5, vide *Timber.*
Green-Wich c. 35, s.16.
Grove c.17, s.2, c.27, s.21, c.30, s.35, c. 35, s. 3, 5, 10, 14, 17, vide *Lucus, Nemus.*
Ground-sille c.31, s.8.
Growth c.28, s.2, 3, 8, c.30, s.1, 2, c. 34, s. 10, 13, 28, vide *Age, Stature.*
Grubbing c.3, s.14, c.34, s.21.
Guaicum c.26, s.6, 22.
Guilding c.22, s.15.
Gumm c.5, s.2, c.22, s. 2, 6, 10, 15, c.24, s.13, c.25, s.12, c.26, s. 21, c. 35, s. 23.
Gun-powder c.14, s.4, c.19, s.5, c.31, s.30.
Gun-smith c 8 s.4, c.10, s.2.
Gunters-line c. 30, s. 33, vide *Girding, Measure.*
Gymnosophists c.35, s.10.

H.

Hafts c.23, s.4.
Haggs c.29, s.5.
Haires c.7, s.5, c.8, s.4, c.30, s. 3.
Halimus c.25, s.13.
Hamadryads c.35, s.14.
Hand-bill c. 29, s. 2, 3, vide *Bill.*
Hangings c.26, s.22.
Hardning c.31, s.35.
Hard-wood c.31, s.15.
Hares c.27, s.7.
Harps c.22, s.15, vide *Musical Instruments.*
Harrows c.20, s.29, c.35, s.15.
Hasel c. 17, 28, s. 1.
Hatchets c.29, s.2.
Haw c.21, s.4.
Head c.8, s.3, c.29, s.4.
Heading c.18, s.4, c.31, s.23.
Heart c.3, s.8, c.22, s.15, c. 29, s.2, c.31, s.6, 15.
Heat c.32, s.19.
Heath c.1, s.1, c.28, s. 10, c.32, s. 15, c.34, s.23.
Hedg c. 12, s. 2, c. 21, s. 6, 8, 9, 14, 18, 22, c. 25, s.7, 9, c. 26, s.2, 10, 12, 13, 14, 16, 20, 23, 24, c.33, s.14.
Hedg-row c. 11, s.1, 2, c.3, s.16, c.4, s.4, 8, c.11, s. 1, c.17, s.4, c. 21, s. 21, c. 30, s. 11, c.31, s. 23, c. 34, s. 14, 18.
Hei-boot c.31, s.33.
Height vide *Stature.*
Hei-thorn c.21, s.4, c.30, s.36, c.31, s.3, vide *Quick Setts.*
Heraulds c.26, s.26.
Hercynian Forest c.30, s.2, vide *Forest.*

Hewing c. 29, ſ. 10, c. 30, ſ. 33, c. 31, ſ. 5, 6, 11, vide *Converting, ſquaring.*
High-waies c. 8, ſ. 3, c. 9, ſ. 4, 10, c. 33, ſ. 2.
Hills c. 1, ſ. 1, c. 22, ſ. 8, 9, c. 26, ſ. 5, 8, 11, c. 34, ſ. 6.
Hinges c. 26, ſ. 17.
Hipps c. 31, ſ. 19, vide *Carkaſs.*
Hiſtory c. 35, ſ. 10.
Hives c. 25, ſ. 2, vide *Bees.*
Hollanders c. 31, ſ. 23.
Hollowneſſe c. 27, ſ. 13, c. 29, ſ. 2, 3, c. 30, ſ. 24.
Holly c. 20, ſ. 14, c. 26, ſ. 11, c. 30, ſ. 5, 30, 36, c. 31, ſ. 3, 15, c. 32, ſ. 19.
Hoopes c. 18, ſ. 8, c. 22, ſ. 15, vide *Cooper.*
Hops c. 18, ſ. 8, c. 29, ſ. 29, c. 22, ſ. 15, c. 28, ſ. 10, c. 33, ſ. 14, c. 34, ſ. 11.
Horn-beam c. 3, ſ. 17, c. 13, 31, ſ. 15.
Hornets c. 27, ſ. 14.
Horſe c. 20, ſ. 14, c. 34, ſ. 16.
Horſe-Cheſs nuts, vide *Cheſs-nut.*
Hovills c. 31, ſ. 24.
Houſe-boot c. 31, ſ. 33.
Hunters c. 21, ſ. 2.
Hurdles c. 17, ſ. 5, c. 20, ſ. 17.
Husks c. 28, ſ. 1, 4.
Husbandman c. 16, ſ. 2, c. 17, ſ. 4, c. 34, ſ. 28, vide *Tooles.*
Hyle vide *Material.*

I

Iamaica c. 26, ſ. 22.
St. Jame's Park, vide *Park.*
January c. 28, ſ. 4, c. 29, ſ. 4.
Jaſmine c. 25, ſ. 15.
Jaundies c. 26, ſ. 21.
Idoles c. 35, ſ. 8.
Ilex c. 25, ſ. 3, c. 30, ſ. 4, 5.
Images c. 26, ſ. 21.
Imbibition c. 1, ſ. 1, 3, 4, c. 22, ſ. 4.
Impoſtumes c. 26, ſ. 21.
Incloſure c. 28, ſ. 8, vide *Commons.*
Incorporation c. 29, ſ. 10.
Incruſtation vide *Coating.*
Indies c. 26, ſ. 22.
Induſtry c. 24, ſ. 14, c. 26, ſ. 22, c. 30, ſ. 8.
Infirmity c. 27, 28, ſ. 4. c. 31, ſ. 23, vide *Diſeaſes.*
Inflamation c. 21, ſ. 16.
Ingraver c. 10, ſ. 2. c. 26, ſ. 6, 17, 21, vide *Carver, Sculptor.*
Inke c. 3, ſ. 17, c. 19. ſ. 5, c. 26. ſ. 21.
Inlaying c. 8, ſ. 4, c. 19, ſ. 5, c. 26, ſ. 6, 17, c. 31, ſ. 35.
Inoculation *Intro.* 7, vide *Graffing.*
Inſcription c. 30, ſ. 9, c. 35, ſ. 12.
Interlucation c. 27, ſ. 9, c. 29, ſ. 4, vide *Pruning.*
Inundation c. 22, ſ. 13.
Joyner c. 5, ſ. 2, c. 7, ſ. 5, c. 8, ſ. 4. c. 9, ſ. 1, c. 10, ſ. 2, c. 11, ſ. 1, 2, c. 26, ſ. 22.
Joyn-ſtools c. 26, ſ. 22, vide *Stools.*
Joyſts c. 8, ſ. 4, c. 23, ſ. 1, c. 31, ſ. 19.
Ireland 25, ſ. 2.
Iron c. 26, ſ. 21.
Iron-Works *Intro.* 1. c. 33, ſ. 11. 12, 15.
Iron-Mills c. 23, ſ. 1, 4, c. 30, ſ. 18, c. 31. ſ. 29, c. 34, ſ. 12.
Italy c. 25, ſ. 1, c. 24. ſ. 17.
Juice c. 16, ſ. 3, 4, 5, 6, 7, 8, 11, vide *Sap.*
July c. 28, ſ. 8, c. 30, ſ. 34.
June c. 31, ſ. 32.
Juniper c. 22, ſ. 15, c. 26, ſ. 19, c. 32, ſ. 19.
Ivy c. 27, ſ. 9.

K.

Keele c. 31, ſ. 15, vide *Shipping.*
Kent c. 30, ſ. 14, c. 33, ſ. 11.
Kernel c. 1, ſ. 2, c. 21, ſ. 4, 10, c. 22, ſ. 1, 15.

Keyes c.6, ſ.1, 2, c. 11, ſ.1.
Keyle-Pinns c.20, ſ.29.
Kidding vide *Bavines.*
Kidnies c.7, ſ.5.
Kind vide *Species.*
Kirſe c.30, ſ.29, 31, vide *Cutting.*
Knee-Timber c. 29, ſ.10, vide *Courbs, Flexures.*
Knife c.20, ſ.29, c.29, ſ.2.
Knotts c.11, ſ.2, c.27, ſ.1, c.29, ſ.5, c.30, ſ.20, c.31, ſ.9, 10, 15, vide *Damasking, Grain.*

L.

Lacq. c.25, ſ.5, vide *Gumm.*
Ladder c.6, ſ.4.
Lamp-black c.22, ſ.16.
Lancaſter c.22, ſ.13.
Larch c.22, ſ.10, 15, c.23, 24, ſ.13, c.30, ſ.4, c.31, ſ.15.
Laſerpitium c.22, ſ.5.
Laſts c. 20, ſ. 29, vide *Shoomaker.*
Lathes c. 3, ſ. 17, c. 22, ſ. 15, c.31, ſ.16.
Lattices c.20, ſ.17, 29.
Lautona c.26, ſ.18.
Laurell c.26, ſ.23, c.30, ſ.4, c.35, ſ. 5, 7.
Laurus-Tinus c.25, ſ.13.
Laws c. 24, ſ. 13, c. 26, ſ.22, c. 27, ſ. 3, 8, c.31, ſ. 26, c. 33, ſ.1, 3, c.34, ſ.29.
Lawſon c.29, ſ.5.
Layers c.9, ſ. 5, c.18, ſ.6, c.22, ſ.12, c.23, ſ. 3, c.25, ſ.10, 11, 12, 15, c.26, ſ.2, 26.
Leaves c. 3, ſ. 2, c. 4, ſ.15, c.5, ſ.2, c.6, ſ.4, c. 7, ſ.1, 5, c.8, ſ.1, 4, c.9, ſ.9, 10, c.11, ſ.11, c.13, ſ.2, c.19, ſ.5, c.26, ſ. 26, c.26, ſ.18, c.29, ſ.8, c.31, ſ.28, c.32, ſ.7, c.33, ſ.2, c.35, ſ.21.
Lentiſcus c.25, ſ.12.
Levity c.31, ſ.18, 20.
Libanus c.24, ſ.3.
Lieutenants c. 34, ſ.16, vide *Officers.*
Lightning c.27, ſ. 11, c.35, ſ. 15.
Lights c.35, ſ.8.
Lignum { *foſſile* c.31, ſ.20. *vitæ.* c.25, ſ.13.
Lime-tree c. 1, ſ. 1, c. 14, 29, ſ.4, c.30, ſ.4, 10, c.31, ſ.15, 30.
Lime c.31, ſ.8, c.32, ſ.19.
Linnen c.7, ſ.5.
Lincolne ſhire c.34, ſ.18.
Liquors c. 1, ſ. 1, 4, c.16, ſ.3, 4, 5, 6, 7, 8, 11, c. 35, ſ. 23, vide *Juice, Sap, Tapping, Imbibition.*
Load c.30, ſ.34, c.31, ſ.18, vide *Timber.*
Loame c.31, ſ.8, 24, vide *Soile.*
Loggs c.31, ſ.28.
London c. 24, ſ.16, c. 30, ſ.35, c.31, ſ.27, 29, 31.
Lopping c. 4, ſ. 12, c. 20, ſ. 26, c.27, ſ.13, c.29, ſ. 2, 3, 5, c.33, ſ.14, 15, vide *Pruning.*
Lotus c.23, ſ.4, c.26, ſ.22, c.30, ſ.4, c.31, ſ.15.
Love c. 30, ſ.5, c. 35, ſ.12.
Lucus c. 35, ſ. 2, vide *Groves.*
Lungs c.24, ſ.13.
Luxury c.26, ſ.22.

M.

Mace c.26, ſ.22.
Mad-dog c.8, ſ.4.
Magnetiſme c.30, ſ.21.
Male c.22, ſ.2, 4, vide *Sex.*
Mall-balls c.25, ſ.5, c.26, ſ.6.
Malefactors c.35, ſ.13.
Mallet c.29, ſ.2.
Mambre c.30, ſ.18, vide *Oak.*
Man c.30, ſ.3.
Manufacture c. 9, ſ. 10, c.26, ſ.22.
Manure c.31, ſ.25.
Maple c.16, ſ.4, c.20, ſ.9, c.31, ſ.13, 19.
March c.28, ſ.4, c.29, ſ.4.
Marking c.33, ſ. 17.
Marle c.8, ſ.2, vide *Soile.*
Marriage c.8, ſ.2.
Marrons c.7, ſ.2, 5.
Marſhes

Marshes c. 3, s. 8, c. 20, s. 26, c. 32, s. 15, vide *Boggs.*
Marrubium c. 28, s. 10.
Mast c. 3, s. 1, 13, 17, c. 5, s. 1, 2, c. 33, s. 2, 9, 14, c. 34, s. 23, 25.
Masts of Ships, c. 22, s. 2, 3, 15, c. 27, s. 23, c. 30, s. 7, 13, c. 33, s. 4.
Mastricht c. 31, s. 24.
Material c. 31, s. 33.
Mathematical Instruments c. 26, s. 6, 22, c. 34, s. 21.
May c. 28, s. 8, c. 31, s. 23.
May-Poles c. 33, s. 17.
Meade c. 16, s. 4, c. 20, s. 1.
Meadow c. 20, s. 26, vide *Pasture.*
Measuring c. 28, s. 8, 9, 10.
Meat c. 21, s. 22.
Medicine c. 31, s. 37, c. 35, s. 24.
Meditation c. 35, s. 2.
Medlar c. 24, s. 2.
Mechanics c. 35, s. 24, vide *Uses.*
Melancholy c. 8, s. 3.
Mensa nucina c. 8, s. 2.
Metamorphosis c. 35, s. 14.
Mice c. 27, s. 18.
Mills c. 3, s. 17, c. 4, s. 15, c. 7, s. 5, c. 10, s. 2, c. 13, s. 2, c. 21, s. 16, 17, c. 26, s. 8, 17.
Mill-Wright, vide *Mills, Saw-mill.*
Mineral c. 17, s. 5.
Miracle c. 27, s. 22.
Misseto c. 27, s. 9.
Mists c. 32, s. 9.
Moisture c. 11, s. 2, c. 29, s. 1, c. 30, s. 1, 26, 24, c. 31, s. 4.
Mole in *Surrey* c. 26, s. 10.
Molluscum c. 11, s. 2.
Moone c. 3, s. 13, c. 29, s. 6, c. 30, s. 26, 27, vide *Season.*
Mopps c. 20, s. 15.
Mortality c. 24, s. 6.
Mortar c. 31, s. 8.
Mosse c. 2, s. 7, 17, c. 22, s. 13, 14, c. 27, s. 8, c. 29, s. 5.
Mothes c. 24, s. 13, 16, c. 30, s. 30.
Mouldiness c. 31, s. 2, c. 32, s. 9.
Moulding c. 24, s. 16, c. 29, s. 10.
Mould c. 3, s. 4, 5, 8, vide *Soile.*
Moules c. 27, s. 17.
Mounds c. 21, s. 13, 14, c. 34, s. 6, 7, 8, vide *Banks, Fences.*
Mountain c. 30, s. 2, c. 35, s. 5, vide *Hills.*
Mulbery c. 9, 20, s. 16, c. 33, s. 19.
Mushrums c. 18, s. 2.
Musical-Instruments c. 11, s. 1, c. 21, s. 19, 22, c. 22, s. 15, c. 24, s. 12, c. 26, s. 6, c. 31, s. 13.
Myrtils c. 24, s. 5, c. 25, s. 11, 14, c. 30, s. 5.
Mysterie vide *Art, Trade.*

N.

Nailes c. 24, s. 16.
Names c. 35, s. 14.
Nature c. 22, s. 6, c. 30, s. 18, 36.
Naumachia c. 23, s. 1.
Navy c. 33, s. 11,
Neasts c. 31, s. 25.
Negligence c. 24, s. 3, 4, c. 29, s. 9.
Nemus c. 35, s. 2, vide *Lucus.*
Netts c. 27, s. 23.
Net-work c. 20, s. 25.
New England c. 22, s. 2, 16, c. 25, s. 1, c. 34, s. 12.
Nitellina c. 20, s. 3.
Noah c. 30, s. 12, vide *Arke.*
Norfolk c. 30, s. 10, 11.
North c. 31, s. 14, c. 32, s. 13, vide *Wind.*
Northampton-shire c. 34, s. 18.
Northumberland c. 22, s. 3.
Norway c. 22, s. 16, c. 30, s. 36.
Nose-gaies c. 25, s. 15.
Notching c. 31, s. 26, 28.
Novelty c. 35, s. 24.
November c. 28, s. 4.
Nursery Intr. 8, c. 3, s. 3, c. 4, s. 4, c. 6, s. 2, c. 9, s. 3, c. 18, s. 6, c. 22, s. 2, vide *Seminary.*
Nut-Crackers c. 26, s. 6, 8.
Nutmegs c. 26, s. 22.
Nutts c. 17, s. 1, c. 22, s. 1, 4, 6, c. 30, s. 7.
Nutriment c. 31, s. 9, c. 35, s. 21.
Nux Vesicaria c. 26, s. 22.
Nymph c. 35, s. 14.

O.

Oares c.5, f.2, c.6, f.4.
Oates c.4, f.6, c.9, f.5, c.22 f.4.
October c.30, f.28, c.31, f.3.
Odoriferous Wood c.31, f.15.
Offal c.18, f.9.
Officers c.3, f.1, c.6, f.3, c.16, f.10, c.21, f.6, 9, c.22, f.15, c.28, f.2, 3, 5, c.29, f.3, 4, 5, 10.
Oak c.30, f.2, 4, 5, 11, 12, 13, 15, 16, 17, 18, 31, 36, c.31, f.3, 12, 13, 15, 17, 23, 28, 37, c.32, f.7, 19, c.34, f.1, 9, 11, 15, c.35, f.6, 9.
Olive c.6, f.3, c.22, f.15, c.25, f.12, c.27, f.21, c.30, f.4, 5.
Oracles c.35, f.6, 7.
Orange-tree c.2, f.5, c.26, f.22, 23.
Orators c.35, f.10, 13.
Orchard c.20, f.1, c.29, f.6.
Organ c.31, f.13, vide *Musical Instruments.*
Ornament c.29, f.4, c.35, f.21.
Ovens c.31, f.23.
Oyle c.3, f.12, 17, c.5, f.2, c.6, f.4, c.8, f.4, c.26, f.21, c.27, f.23, c.31, f.15, 34.
Oziers c.20, f.17, 22, c.33, f.3.

P.

Pales c.3, f.17, c.21, f.8, c.22 f.15.
Palmes, Palmeto c.16, f.7, c.20, f.8, c.30, f.30.
Pailes c.20, f.29.
Painter, Painting c.8, f.4, c.20, f.15. c.31, f.34.
Paliſade c.21, f.20, c.25, f.2, c.26. f.4.
Palſie c.3, f.17, c.26, f.21.
Paliurus c.21, f.11,
Panacea c.26, f.21.
Pantherine c.11, f.2.
Paper c.31, f.35, c.35, f.12.
Paradiſe c.35, f.5.
Parlyſis vide *Palſie.*
Paris c.25, f.15.
Parke c.26, f.14, c.29, f.4, c.33, f.8, 9, 10, c.24. f.1, 2, 23, c.35, f.2, 10, 16, vide *St. James's.*
Parts c.12, f.19.
Paſtorals c.35, f.10, vide *Scenes.*
Paſture c.1, f.1, c.4, f.9, c.21, f.2, c.32, f.15, c.33, f.9, c.34, f.18, 19, 21, 23.
Patriarchs c.35, f.2.
Pattens c.20, f.29.
Peach c.24. f.2.
Pea-Cocks Tayle c.11, f.1.
Pear-tree c.21, f.22, c.30, f.2, 3, 30, c.31, f.3, 12, 13, 15, 34. vide *Peares.*
Peate c.31, f.23, vide *Turfe.*
Pecten c.31, f.115 vide *Veines.*
Pedegre c.34, f.17.
Peelings c.20, f.18.
Pembrok-ſhire c.22, f.13.
Penitence c.35, f.5.
Pepper c.8, f.4, c.25, f.14, c.26, f.21, 22.
Perches c.20, f.8, 26, 29, c.28, f.10, vide *Poles.*
Percolation c.16, f.7.
Perfume c.26, f.18, 23.
Peſtles c.21, f.19, c.26, f.6.
Petrification c.31, f.21, vide *Stones.*
Phanatics c.35, f.6.
Philiſtines c.33, f.6.
Philoſophy c.34. f.21, c.35, f.10, 20.
Phillyrea c.25, f.8.
Phlegme c.26, f.18.
Pulmonaria c.29, f.8, vide *Leaves.*
Phyſical-uſes c.29, f.1, vide *Medicine.*
Pictures c.26, f.21.
Pikes, Pike-Staves c.6, f.2, 4, c.20, f.4, 9, 15, 19.
Piles c.3, f.17, c.19, f.5, c.31, f.3, 4.
Pillows c.10, f.8.
Piceaſter c.22, f.10.
Pinaſter c.22, f.1, 7.
Pine Int. 8, c.2, f.8, c.22, f.1, 2, 4, 5, 7, 8, 12, 13, 15, 16, c.24, f.4.
Pinns c.23, f.4, c.24. f.16, c.26, f.8, 17, c.31, f.15.
Pipes c.21, f.22, c.23, f.4, c.26, f.6. c.30, f.36, c.31, f.13.
Piſmires c.27, f.19, vide *Ants.*
Pitch c.21, f.16, c.22, f.15, 16, c.31, f.7, 8, 15.
Pith c.30, f.20, 29, c.32, f.19.

Pitts c.3,ſ.4.
pitty c.29,ſ.1.
place c.14,ſ.1,c.24,ſ.14,c.31,ſ.14. vide *Situation, Place.*
plague c.22,ſ.15,c.26,ſ.21,
plank c.11, ſ.2, c.24,ſ.12,c.25, ſ.2, c.30, ſ.7,35, vide *Boards.*
planting, plantation *Inter.* 2, 8, c.18, ſ.4, c.19, ſ.1,3, c.20,ſ.5,6, 26,c.24, ſ.3,c.26, ſ.16,22, c.28, ſ.1, c.29, ſ.1,9, c.30, ſ.23, c.32, ſ.8, 10, c.33, ſ.2,12, c.34,ſ.6,21, 23, 29, c.35, ſ.19.
plants c.32,ſ.4.
plaſh-poles c.28,ſ.7.
plaſhing c.4,ſ.12,c.21,ſ.8,9, vide *pruning.*
plaſter c.27,ſ.12, c.31, ſ.19,15, vide *Ceiling, Lathes.*
platanus c.23,ſ.2,3,c.30,ſ.4,5,6, c.35, ſ.10, vide *Xerxes.*
plough c.6, ſ.4, c.8,ſ.2, c.20,ſ.4, c.29, ſ.19, c.34, ſ.1,2.
plough-boote c.31,ſ.33.
plum-tree c.24, ſ.2, c.30, ſ.30, c.31,ſ.12.
poets c.26,ſ.26, c.35,ſ.7,10.
pollard c.18,ſ.1, c.29,ſ.3,6.
poles c.6,ſ.4, c.7, ſ.2,3,5, c.17,ſ.3, 5,c.19,ſ.15,c.22, ſ.15, c.24,ſ.12, c.28, ſ.10, vide *Hops, Perches.*
policy c.26, ſ.22.
politicians c.35,ſ.12.
polling c.9, ſ.7, vide *Heading.*
poliſhing c.6,ſ.3, c.8,ſ.2,c.11,ſ.2. c.22,ſ.15, c.26,ſ.6,c.31,ſ.15, 34,35.
poore c.21,ſ.22.
pores c.30,ſ.20,21.
poplar c.16,ſ.10, c.18,ſ.1,7,8, c.28,ſ.1, c.30,ſ.10,c.31,ſ.15, c.32,ſ.19.
portcullis c.31,ſ.7.
portion c.24,ſ.12,c.34,ſ.17.
poſterity c.24,ſ.2.
poſts c.26,ſ.8, c.31,ſ.15, vide *Columns.*
pot-aſhes c.22,ſ.15.
pots c.31,ſ.35.
poultry c.3,ſ.17,c.9,ſ.9.
powder c.6,ſ.4,c.16,ſ.2.
prayer c.35,ſ.2.
preſages c.10,ſ.2, c.26,ſ.26, c.31, ſ.28, vide *Prophets.*
preſerving c.8,ſ.4.
prices c.30, ſ.28, vide *Sale.*
priming vide *Painting.*
principal-Timber c.31,ſ.19, vide *Timber.*
probleme c.31,ſ.18.
prophets c.35,ſ.7.
proportion c.33,ſ.17, vide *Scantling.*
protection c.35,ſ.21.
providence c.34,ſ.17, c.35,ſ.20, 21, 22, 23, 24.
prow c.31,ſ.15, vide *Shipping.*
pruner, pruning c.3,ſ.13, c.7,ſ.3, c.9,ſ.3, 7, 11, c.18,ſ.6,c.20, ſ.22, c.22,ſ.6,c.25,ſ.10, c.26, ſ.20,23,24, c.38, ſ.6,7, c.29, ſ.1,6,10,c.32,ſ.19, c.33,ſ.2,c.35,ſ.15, vide *Arborator, Polling.*
pſalteries c.22,ſ.15, vide *Muſical Inſtruments.*
ptiſic c.3, ſ.17,c.16,ſ.9,c.26,ſ.21.
pullies c.6,ſ.4, c. 10,ſ.2,c.26,ſ.6, 8, vide *Blocks, Shivers.*
pumps c.19, ſ. 5, c. 31,ſ.15, vide *Aquæducts.*
purlins c.31,ſ.19.
puttie c.31,ſ.5, 34,vide *Painting.*
pyracanth c.21,ſ.11.
pyes c.7,ſ.5.

Q.

Quakers c.35,ſ.7.
Quality c.31,ſ.15,36.
Quarter-cliſt c.30,ſ.15.
Quartering c.31, ſ.6, vide *Hewing.*
Quercus c.31,ſ.15,25, vide *Oak.*
Quick beam c.15,ſ.1, vide *Whitchen.*
Quick-Set c.20, ſ.4, 9, c.26,ſ.16, c.31,ſ.7, vide *Hey thorn.*

Quince c.24, ſ.2, c.30, ſ.30.
Quincunx c.20, ſ.6, 26, c.34, ſ.11.

R.

Rafters c. 26, ſ. 21, c. 31, ſ. 16, 19.
Raine c.11, ſ.2, c.20, ſ.6, c.27, ſ.1, 4, 7, 8, 13, 15, c.29, ſ.2, 4, 5, 7, vide *Water, Wet, Dripping.*
Rakes, Raking c.20, ſ.15, 24, c.28, ſ.7.
Raiſing *Int.* 6.
Rangers c.34, ſ.16.
Receſs c. 35, ſ. 10, vide *Solitude.*
Recreation c.34, ſ.16.
Regarders c.33, ſ.9, vide *Officers.*
Reines c.26, ſ.21.
Religion c. 35, ſ.2, vide *Superſtition.*
Removing *Int.* 7, c.2, ſ.6, c.3, ſ.10, c. 14, ſ. 3, c. 22, ſ. 3, 4, c.30, ſ.3, vide *Tranſplanting.*
Rent c.34, ſ.5.
Revailing c. 31, ſ. 34, vide *Painting.*
Rhetorick c.35, ſ.10.
Reſurrection c.35, ſ.13.
Rind c.5, ſ.2, c.6, ſ.3, c.7, ſ.5, vide *Bark.*
Rings c.30, ſ.19, 20, 21, vide *Circles.*
Ripening c.8, ſ.4.
Rivelin, vide *Park* c. 30, ſ. 15.
Rivers c.33, ſ.2.
Robur c. 31, ſ. 15, vide *Quercus.*
Rocks c. 1, ſ. 1, c. 2, ſ. 5, c. 3, ſ. 5, c.22, ſ.9, c.26, ſ. 22, c. 34, ſ. 23, vide *Flints, Stones.*
Rodds c.16, ſ.2.
Rolling-pins c.26, ſ.6.
Romans c.23, ſ.2.
Ropes c. 4, ſ. 5, c.9, ſ.9, c.14, ſ.4, c.21, ſ.5, c.27, ſ.23, vide *Cables.*
Roſen c.22, ſ.16.
Roſes c.24, ſ.2.
Roſe mary c.30, ſ.3.
Roofes c.31, ſ.19.
Rookes c.27, ſ.21.
Rooters *Int.* 7, 8, c. 1, ſ. 1, c.3. ſ.5, 6, 10, 14, 17, c.4, ſ.6, 10, 15, c.5, ſ.1, c.6. ſ.3, 4, c.7, ſ. 5, c.8, ſ.1, c.16, ſ. 6, c. 22, ſ. 6, 9, c.24, ſ.13, c.27, ſ. 10, 11, c. 26, ſ. 1, 4, 6, 15, 20, c. 27, ſ. 1, 4, 5, 9, 12, 22, c.28, ſ.6, c.29, ſ.4, 6, c.30, ſ.2, 4, 20, 24, 31, c.31, ſ.22, 24, 29, c.32, ſ.9, 10, 11, 12, 13, 16, 17, c 33, ſ.2, c.35, ſ.21.
rotting c.27, ſ.1, c.29, ſ.2, 4, c.32, ſ. 16.
royal-Society vide *Society.*
rubbing c.29. ſ 4, 7.
rulers c.30, ſ.33.
rupture c.3, ſ.17, c.10, ſ.2.
ruſt c.26, ſ.21.
Rye c.1, ſ.1.

S.

Sacks c.31, ſ.29, 31, vide *Coales.*
Sacraments c.35, ſ.5.
Sacrifices c.35 ſ.6, 15, 19.
Sadlers c. 12, ſ.2, c.20, ſ.29.
Saffron c.9, ſ.10.
Salads c. 3, ſ. 17, c. 6, ſ.4, c.8, ſ.4, c.23, ſ.4.
Sallies c.20, ſ. 3, c.28, ſ. 1, c. 32, ſ.19, c.33, ſ.3, 14, c.34, ſ.20.
Salt c.3, ſ.17, c.31, ſ.3.
Samera c.4, ſ.2.
Sand c.22, ſ.2, 9, c.31, ſ.7.
Sap c.3, ſ.5, 13, c.8, ſ.3, c.16, ſ.3, 4, 5, 6, 8, 11, c.20, ſ.29, c. 21, ſ. 9. c.27, ſ.22, c.29, ſ. 5, 6, 10, c.30, ſ. 3, 21, 25, c.31, ſ.2, 9, 23, c.32, ſ. 12.
Savine c.24, ſ.9.
Saw-duſt c. 29, ſ.2, c.31, ſ. 4, 5.
Sawing c.30, ſ.37, vide *Mill.*
Saw-mill c.34, ſ. 12, vide *Mill.*
Scabbs c.5, ſ.2, c.27, ſ.1.
Scaffolds c. 22, ſ.15, vide *Poles.*
Scales c.31, ſ.7.
Scantlings c.28, ſ 3, c 30, ſ.28, 32, 36, c.33, ſ.17, c.34, ſ.18, *Proportion.*
Scarrifying c.29, ſ.8.
Sceanes c.35, ſ.10.

Scholes

Scholes c. 35, ſ. 10.
Scotland c. 22, ſ. 2, 14, 16, c. 31, ſ. 25.
Scraping c. 27, ſ. 9.
Screw c. 10, ſ. 2, c. 21, ſ. 16, c. 26, ſ. 6.
Scurvey c. 15, ſ. 2, c. 21, ſ. 16, c. 22, ſ. 15.
Sea c. 25, ſ. 2, vide *Shipps.*
Seaſon c. 5, ſ. 2, c. 8, ſ. 1, 4, c. 9, ſ. 3, 4, c. 11, ſ. 2, c. 15, ſ. 1, c. 17, ſ. 2, 4, c. 18, ſ. 5, c. 19, ſ. 1, c. 20, ſ. 13, 18, 21, c. 24, ſ. 6, c. 26, ſ. 3, 5, 14, c. 27, ſ. 5, c. 28, ſ. 4, c. 29, ſ. 2, 4, 6, c. 30, ſ. 25, c. 32, ſ. 7, 9, 16, 19.
Seaſoning c. 5, ſ. 2, c. 8, ſ. 4, c. 21, ſ. 7, c. 30, ſ. 25, 34, c. 31, ſ. 1, 2, 3, 4, 34.
Sebeſtins c. 26, ſ. 18.
Seconds c. 28, ſ. 3.
Seedes *Int.* 7, 8, c. 1, ſ. 2, 3, 4, c. 3, ſ. 6, 8, c. 4, ſ. 2, c. 20, ſ. 24, c. 22, ſ. 5, c. 23, ſ. 3, c. 24, ſ. 11, 14, c. 25, ſ. 7, 9, 11, c. 26, ſ. 9, 10, 20, 26, c. 32, ſ. 1, 2, 3, 4, c. 34, ſ. 9, 10, c. 35, ſ. 20, 22.
Seedling *Int.* 8, c. 5, ſ. 1, c. 27, ſ. 1, c. 28, ſ. 4.
Seminary vide *Sowing* c. 1, ſ. 3, c. 2, ſ. 1, vide *Nurſery, Sowing, Seed.*
September c. 28 ſ. 4.
Sepulcher c. 35, ſ. 5, 13, 15, vide *Burying.*
Serpent c. 6, ſ. 4.
Service c. 10, ſ. 1, c. 28, ſ. 6, c. 31, ſ. 3, c. 32, ſ. 19.
Seſeli c. 25, ſ. 13.
Setts c. 13, ſ. 1, c. 15, ſ. 1, c. 20, ſ. 10, 13, c. 21, ſ. 5, 6, 12, c. 26, ſ. 14.
Sex c. 30, ſ. 29, 30, vide *Male, Female.*
Shade c. 3, ſ. 13, 17, c. 6, ſ. 3, 4, c. 7, ſ. 3, c. 8, ſ. 3, c. 11, ſ. 2, c. 12, ſ. 1, c. 13, ſ. 3, c. 16, ſ. 6, c. 18, ſ. 2, 6, 8, c. 19, ſ. 2, c. 20, ſ. 29, c. 22, ſ. 8, 9, c. 23, ſ. 2, c. 26, ſ. 4, 9, 20, 26, c. 29, ſ. 4, c. 30, ſ. 4, 7, 15, 16, 17, 18, c. 31, ſ. 34, c. 33, ſ. 2, c. 34, ſ. 14, 24, c. 35, ſ. 14, 19.
Shape c. 29 ſ. 5.
Sheathing c. 22, ſ. 15.
Sheſield-Park c. 30, ſ. 15, 18, vide *Foreſt.*
Sheep c. 9, ſ. 9, c. 21, ſ. 1, 2, 3, 9, c. 26, ſ. 13, 14, c. 34, ſ. 23, c. 35, ſ. 7.
Shell c. 8, ſ. 1, 4, c. 31, ſ. 7.
Shelter c. 3, ſ. 7, c. 21, ſ. 10, c. 25, ſ. 11, c. 27, ſ. 11, 22, c. 34, ſ. 18, vide *Shade.*
Shelves c. 24, ſ. 16.
Sherewood vide *Foreſt.*
Shingles c. 3, ſ. 17, c. 22, ſ. 15.
Ships c. 3, ſ. 17, c. 4, ſ. 15, c. 22, ſ. 15. c. 23, ſ. 3, c. 24, ſ. 13, c. 26, ſ. 22, c. 29, ſ. 10, c. 30, ſ. 13, 14, c. 31, ſ. 6, 15, c. 33, ſ. 4, c. 34, ſ. 2, 29, vide *Maſts.*
Ship-boot c. 31, ſ. 33.
Shivers c. 26, ſ. 17, vide *Blocks, Pullies.*
Shootes c. 17, ſ. 3.
Shovells vide *Spades.*
Shoo maker c. 20, ſ. 29, c. 25, ſ. 2, c. 26, ſ. 6, vide *Soles.*
Shrinking c. 31, ſ. 4.
Shuttles c. 26, ſ. 6.
Sickneſs vide *Infirmity.*
Signes c. 30, ſ. 26, vide *Moon*
Silk worm c. 9, ſ. 3, 9, 10, 12, c. 26, ſ. 22.
Single c. 31, ſ. 26.
Sinking c. 31, ſ. 18, vide *Weight.*
Sinnues c. 21, ſ. 16.
Sittim c. 24, ſ. 17.
Situation c. 2, ſ. 7, c. 7, ſ. 1, c. 8, ſ. 2. c. 26, ſ. 22, vide *Aſpect, Climate.*
Skreenes c. 31, ſ. 35.
Slabbs c. 31, ſ. 6, vide *Plank, Board.*
Sleepers c. 31, ſ. 19.
Sleeping c. 8, ſ. 1.
Slips c. 18, ſ. 5, c. 26, ſ. 5, vide *Cyons.*
Sloes c. 21, ſ. 4.
Sluces c. 31, ſ. 7, vide *Water-works.*
Small-Coale vide *Coale.*
Smilax c. 26, ſ. 9.
Smoke c. 20 ſ. 26, c. 30, ſ. 35, c. 31, ſ. 3.
Snailes c. 27, ſ. 15.

Snow c.24, ſ.14, c.32, ſ.19, vide *Cold, Froſt.*
Sobriety c.31, ſ.14.
Society vide *Royal S.* c.25, ſ.22, c.31, ſ.20.
Socrates c.35, ſ.9, 19.
Soft-Wood c.31, ſ.15.
Soile c. 1, ſ. 1, c.4, ſ. 8, c.5, ſ.1, c. 6, ſ. 3, c.7, ſ.1, c.8, ſ.2, c.9, ſ.4, c.10, ſ.1, c.13, ſ.1, c.14, ſ.2, c.15. ſ. 1, c. 16, ſ. 1, c.17, ſ.4, c.18, ſ.6, c.20, ſ.3, 4, 8, 17, 20, 26, c.22, ſ.2, 3, 9, 10, c.23, ſ. 3, 4, c. 24, ſ. 11, c.25, ſ.1, c.30, ſ.36, c.32, ſ.1, 14, c.34, ſ.10, 22, vide *Mould.*
Soles c.25, ſ.2.
Solitude c.35, ſ.6.
Solomon c.22, ſ.15, c.24, ſ.3.
Soules vide *Spirits.*
Sounds c. 22, ſ. 15, c.31, ſ.10, 13.
Soundneſs c.32, ſ.10.
South c.3, ſ.7.
Sowing *Int.* 2, c. 1, ſ.3, 5, c. 2, ſ.1, c.7, ſ.1, c.8, ſ.1, c.9, ſ.3, c.10, ſ. 1, c.17, ſ.1, c.22, ſ.2, 3, 4, c. 24, ſ. 6. c.26, ſ.10, c.34, ſ. 9, 23.
Spades c.20, ſ.15.
Spaine, Spaniard c.33, ſ.6.
Sparrs c.3, ſ.17.
Speares c.21, ſ.15, c.22, ſ.15, c.25, ſ. 14.
Species c.32, ſ.19, vide *Kind.*
Spice c.26, ſ.22.
Spindle-tree c.21, ſ.19.
Spirits c.31, ſ.37, c.35, ſ.8.
Spitts c.26, ſ.21.
Spleen c.6, ſ.4, c.15, ſ.2.
Splicing c.29, ſ.3.
Splitting c.30, ſ.36, c.31, ſ.3, 5, 23, 24. vide *Cleaving, Chinks*, &c.
Spoile c.35, ſ.17, vide *Waſt.*
Spontaneous Productions, *Int.* 7. c.22, ſ.5.
Spoones c.26, ſ.6, 21.
Spray c.28, ſ.7, c.31, ſ.31, vide *Bavine, Bruſh.*
Spreading c.29, ſ.6.
Spring c.28, ſ.4, c.29, ſ.6, 7, c.30, ſ.25, c.32, ſ.12.
Spring-Wood c.28, ſ.1, vide *Copps.*
Springes c.17 ſ.5.
Spruce c.22, ſ.2, vide *Firr.*
Square c.31, ſ.19.
Stacks c.28, ſ.9, vide *Cord.*
Stafford-ſhire c.22, ſ.13.
Stacking c.2, ſ.8, c.3, ſ.7, c.4, ſ.4, c.14, ſ.4, c.21, ſ. 6, 9, c. 27, ſ.22, c. 31, ſ.23, 28, 29.
Standards c.6. ſ.2, c. 9, ſ.4, c. 21, ſ.6, c.24, ſ.8, 9, c.26, ſ.13, 23, 25, c.27, ſ.9, c.34, ſ.13, 14.
Standells c.28, ſ.3.
State c.30, ſ. 1, c. 35, ſ. 14, vide *Age, Stature.*
States-men c.35, ſ.12.
Statutes c.8, ſ.3, c.22, ſ. 15, vide *Lawes.*
Staves c.3, ſ.17, c.8, ſ.4, c.14, ſ.4. c.21, ſ.10, 15, c. 31, ſ. 34, vide *Cudgels.*
Stayre-Caſes c.31, ſ.19.
Stem c.3, ſ.6, c.29, ſ.7.
Sterne c.31, ſ.15, vide *Ships.*
Steward c.30, ſ.33.
Stitch c.3, ſ.17, c.8, ſ.4.
Stock c.3, ſ.7, 12, c.34, ſ.7, 23.
Stomack c.10, ſ.2, c.18, ſ. 8. c.19, ſ. 5.
Stones c.1, ſ.1, c.3, ſ.17, c.26, ſ.18, c.31, ſ.20, c. 32, ſ. 5, vide *Flint, Rock.*
Stooles c.21, ſ.22, c.31, ſ.35.
Stopping vide *Putty, Timber.*
Stoves c.31, ſ.23, vide *Fuell.*
Strangurie c.16, ſ.10.
Strength c.31, ſ.17.
Stripping c.29, ſ.4, c.31, ſ.23, vide *Pruning.*
Stroke c.29, ſ.3, vide *Cutting.*
Study c.35, ſ.10.
Stumps c.3, ſ.14, c.4, ſ.4, c.29, ſ. 2.
Styrax c.26, ſ.22.
Subterranean-Trees c.22, ſ.13, 14, c.30, ſ.20, 22, 23.
Suckers c.3, ſ.14, c.4, ſ.7, c.5, ſ.3, 4, c.6, ſ.2, c.9. ſ.5, c.10, ſ.1, c.14, ſ.1, c.16, ſ.1, c.18, ſ.1, c.20, ſ.26, c.22,

c.22, s.12, c.25, s.12, c.26, s.3, 16, c.27, s.2, c.29, s.4, 5, c.35, s.22.
Suderifiq c.16, s.10.
Suffolk c.30, s.13.
Sun c.29, s.4, 5, c.31, s.2, 3, 5, 7, 14, c.32, s.13.
Summer c.30, s.25, 26, c.31, s.3, vide *Season.*
Superstition c.35, s.5, 6, vide *Religion.*
Surrey c.26, s.10, c.33, s.11.
Surveying c.30, s.28, c.30, 4, s.26, vide *Officers.*
Sussex c.26, s.14, c.33, s.11, c.34, s.12.
Sweating c.31, s.2.
Swine c.5, s.2, c.8, s.4, c.34, s.26.
Swisser Land c.30, s.36.
Switches c.17, s.5, *Cudgels, Staves, Wands.*
Sycomor c.12, 16, s.4, c.28, s.1, c.30, s.4, c.34, s.20.
Sylva c.28, s.1, c.35, s.2, vide *Copps, Wood,* &c.

T.

Tables c.11, s.2, c.21, s.22, c.24, s.16, c.26, s.6, 21, c.27, s.9, c.31, s.4, 7, 13, 35.
Tabernacles c.35, s.3.
Talishides c.31, s.27, vide *Lawes.*
Talisman c.25, s.6.
Tamarisk c.28, s.10.
Tankard c.26, s.8.
Tanner c.3, s.17, c.5, s.1, 2, c.16, s.2, c.25, s.2, c.30, s.25.
Tapping c.16, s.3, 4, 5, 7, 8, 11, c.31, s.37, vide *Sap.*
Tar c.22, s.16, c.27, s.12, 14, c.29, s.4, c.31, s.7.
Targets c.18, s.2, vide *Bucklers.*
Teda c.22, s.11, vide *Pine.*
Temples c.35, s.3, 4, 8.
Teeth c.5, s.2, c.6, s.4, c.21, s.19, c.22, s.15, c.25, s.12.
Tettars c.5, s.2.
Texture c.30, s.18, 19.
Thames c.19, s.2.
Thatcher c.6, s.4 c.17, s.5, c.20 s.3.
Theater c.31, s.19.
Theriacle c.21, s.16, c.26, s.21.
Thinning c.22, s.4.
Thistle c.21, s.7.
Thorn c.21, s.9, 10, 12, 20, c.31, s.24.
Throat c.9. s.9.
Tigrin c.11, s.2.
Tilia vide *Lime-tree.*
Timber c.3, s.4, 5, 13, c.6, s.2, 3 c.7, s.1, 5, c.8, s.1, c.9, s.1, c.10, s.2, c.11, s.1, c.14, s.4, c.16, s.5, c.18, s.8, c.20, s.3, 6, c.21, s.14, 21, c.22, s.3, c.23, s.4, c.24, s.3, 13, c.26, s.17, 22, c.28, s.1, 2, 3, 4, 10, c.29, s.2, 5, c.30, s.2, 3, 7, 8, 11, 12, 13, 15, 16, 17, 18, 21, 25, 26, 27, 28, 31, 34, c.31, s.1, 3, 4, 5, 6, 7, 8, 9, 14, 15, 17, 19, 23, 24, c.33, s.3, 10, 17, c.34, s. 22, 25, 28.
Time c.26, s.15.
Tinder c.33, s.17.
Tithe c.21, s.22, c.33, s.3, 14.
Toddy c.16, s.7.
Tooles c.5, s.2, c.13, s.2, c.20, s.4, c.25, s.5, c.26, s.17, c.29, s.2, vide *Husbandry.*
Topiary-work c.20, s.2.
Topps c.26, s.6.
Torches c.22, s.15.
Torulus c.22, s.15, c.31, s.9.
Trade vide *Art, Mysterie.*
Transplanting c.3, s.4, 6, 7, 9, 12, c.4, s.2, 6, 7, c.5, s.1, c.6, s.2, c.7, s.1, 2, c.8, s.1, c.9, s.3, 4, c.16, s.6, c.17, s.2, c.18, s.1, 5, 6, c.20, s.16, c.22, s.2, 3, 4, 6, c.24, s.6, c.25, s.9, c.26, s.10, 14, c.27, s.2, 4, 5, 6, 7, 13, vide *Removing.*
Transporting c.22, s.2, vide *Carriage.*
Trayes c.20, s.29.
Treason c.35, s.15.
Trees c.26, s.8, c.30, s.3, c.31, s.36, c.32, s.19, c.33, s.1, c.34, s.16.
Trenchers c.12, s.2, c.19, s.5.
Trenching c.3, s.6, c.21, s.9, vide *Ditching.*

Tripos c.35, f.7.
Trojan-Horse. c.22. f. 15.
Tryumphs c.26, f.26.
Tulip tree c.18, f.3.
Tunn c.30, f.34, vide *Measure.*
Turfe c.31, f.23.
Turner c.11, f.1, c.13, f.2, c.16, f.2, c.18, f.8, c.19, f. 5, c.20, f.29, c.26, f.6, 17, 22, c.31, f.3, 4.
Turpentine c.22, f.16.
Twiggs c.29, f 2.
Tyling c.31, f.16.

V.

Allies c.34, f.6.
Vanns c.26, f.2.
Veines c.31, f. 9, 11, 12, 22, vide *Grain.*
Venice, Venetians c. 23, f. 1, c. 31, f.3, 14, c.34, f.29.
Venturine c.31, f.35.
Verdure c.25, f.7, 9, 10, 12, 13, c.26, f.10, 11, 12.
Vermine c.7, f. 2, c.8, f.1, c.9, f.9. c.17, f.2, c.22, f.6, c.32, f.17.
Verniſh c.5, f.2, c.8, f.4, c.26. f.21, c.27, f.23, c.31, f.34, 35.
Vines, Vine-yard c. 18, f. 8, c. 22, f.12, 24, 29, c.24, f. 12, c. 26, f.22, c.30, f.4, c. 31, f.37.
Violes c.31, f.13.
Virginia c.22, f.16, c.26, f.22.
Viſcus c.21, f.4.
Viſions c.21, f.4, c.35, f.7, 15, vide *Apparitions.*
Ulcers c.3, f.17, c.8, f.4, c.9, f.9.
Under-wood c. 28, f.3, c 31, f.23, vide *Coppſe.*
Univerſities c.26, f.22.
Upholſter c.5, f.2, c.8, f.4.
Urine c.3, f.17.
Utenſils c. 5, f. 2, c. 8, f. 2, c. 26, f. 22.

W.

Wagon c.20, f.17, c.30. f.16, vide *Carts.*
Wain-Scot c. 3. f. 17, c.8, f.4, c.22, f.2, 15, c.24, f.16, c.31, f.2, 34, vide *Clap-board.*
Waires c.20, f.17, c.30 f.16.
Wales c.22, f.9.
Walkes c.9, f.4, c.10, f. 2, c.12, f.1, 2, c.13, f. 2, c. 18, f.8, c.20, f.26, c.22, f.7, c.23, f.2, 4, c.26, f. 1, 10, 23, c.29, f.6, c.34, f.9.
Wall-nut *Int.* 8, c. 5, f. 2, c. 8, 27, f.22, 23, c.30. f.7, c.31, f.4, 12, 15, c.32, f.11, 19, c.34, f.2.
Walls c.17, f. 5, c. 21, f. 10, c.25, f.2, c.26, f.23.
Wands c. 31, f. 34, vide *Staves.*
Warders c.33, f.10, vide *Officers.*
Warrens c.21, f.8.
Waſps c.27, f.14.
Waſts c. 20, f.30, c. 29, f.10, c.30, f.28, c. 31, f.6, c.35, f.17, 18, vide *Commons.*
Water c.7, f.5, c.9, f. 3, 5, c.16, f.3, 4, 5, 6, 8, c.18, f.1, c.22, f.2, 9, c.23. f. 2, c. 24, f. 11, c.30, f.27, c.31, f. 3, 18, c.32, f.16, vide *Wet.*
Water-boughs c.28, f.7, c.29, f.4, 6, vide *Boughs.*
Water-works c.4, f.15, vide *Aquæ-ducts.*
Wavers c.28, f.3, 6, vide *Copſes.*
Wax c.31, f.5.
Way-faring-tree. c.21, f.19.
Wedges c.23, f.4, c.31, f.15.
Weeding, Weeders c. 9, f. 3, c. 18, f.1, c.20, f.24, c.21, f.5, 7, 14, c.24, f.11, c.27, f. 1, c.28, f.1, c.29, f.6, c.30, f.3, c.33, f.3.
Weight c. 31, f. 9, 17, 18, vide *Sinking.*
Weſt c. 31, f.15, vide *Winds.*
Weſtphalia c.30, f.7, c.34, f.25, 26.
Wett c. 32, f. 19, vide *Rain, Moiſture, Water.*
Wheat c.21, f.22, c. 31, f. 3, vide *Corn.*
Wheeler c.3, f. 17, c. 4, f.15, c. 5, f.2, c.6, f.4, c.9, f.1, c.15, f.2, c.23, f.4, c.26, f.6, 8.
Wheeles c.29, f.5, 10, c.31, f.3.
Whitchen c. 3, f. 5, c. 4, f.5, c.15, f.1, vide *Wich haſel.*
White vide *Colour.*

White-work c.20, f.18, vide *Oziers, Baskets.*
Wilderneſſe c.35, f.5.
VVild-Fowle c.21, f.14.
VVillow c.20, f.26, 27, 28, c.28, f.1, c.30, f.1, 36, c.31, f.15, c.33, f.3, 14, c.34, f.20.
VVind c.2, f.8, c.3, f.8, 9, 12, c.4, f.11, c.13, f.2, c.21, f.10, c.22, f.1, c.24, f.7, c.25, f.8, 9, c.26, f.13, 14, c.27, f.11, 22, c.29, f.6, c.30, f.26, 27, 34, 36, c.31, f.2, 3, 5, 23, c.32, f.8, 9, 10, 13, c.35, f.21.
VVind-ſtock c.31, f.5.
VVindow c.31, f.4, 8.
VVine c.3, f.17, c.5, f.2, c.16, f.7, 8, 9, c.17, f.5, c.24, f.13, c.25, f.2.
VVinter c.31, f.3, 9, 23, vide *Seaſon.*
VVithy c.20, f.2, c.30, f.11.
VVood c.31, f.1, 13, 18, 22, 35.
Woods c.21, f.3, c.22, f.5, 8, c.25, f.15, c.26, f.14, c.27, f.1, 8, c.29, f.5, 9, c.32, f.10, c.33, f.6, 8.
Wood monger c.31, f.28.
Wood-ſtealers c.33, f.4, vide *Statutes.*
Wood-wards c.21, f.2, c.29, f.2, 9, c.30, f.28, 33, vide *Foreſter.*
Wood pecker c.27, f.6.
Working c.31, f.11, vide *Hewing.*
Work-Sop, vide *Park* c.30, f.15, 18.
Wormes c.3, f.13, c.5, f.2, c.8, f.1, 4, c.14, f.1, c.24, f.12, 13, 16, c.27, f.6, 22, 23, c.29, f.7, c.30, f.25.
Wounds c.4, f.15, c.29, f.4.
Wrack c.31, f.25, vide *Fuell.*
Wythes vide *Bands.*

X.

XErxes c.23, f.2, c.30, f.5, vide *Platanus.*

Y.

YEw c.21, f.4.
Yoakes c.13, f.2, c.14, f.4.
Youth c.19, f.4, c.31, f.12.
Yucca c.21, f.20

The TABLE to

POMONA.

A

Aboundance pag. 20.
Abricot 15.
Age 59,65.
Agriculture 5.
Aire 3,8.
Ale 1,
Alteration *vide* Species, Mixture 15, 16.
Antidote 37.
Antients 14,15.
Apples 7,10,11,14,16,31,35,39,52. Hard 40, 41, 42, 48. Sweet 57. Arier-Apple 65. Baking-Apple 65. Bitter-Sweet 56. Bromsberry-Crab.8, 14,18,19,40,58,65. Codling 19, Coleing Ap.65. Crab and Wilding 7,8,9,10, 14,15,16, 18, 19,20,24,31,32,36,58. Deane 57. Eliot 16. Fillets 59. Fox-Whelp 18,58,65. Genet-Moyle 12, 18,19,36,40,59,65. Gilly-Flower 57. Greening 16. Harley 65. Harvy 16,18,58. Heming 64. Musts 8, 18, 34, 35, 58, 64, 65. Olive 65. Peare-main 16, 18, 36, 34, 40,57,58, 60, 65.
Pepin, Kentish, Golden } 16,18,19,30,34,39, 40, 50, 57, 58, 60.
Pleascentine 57.
Purling 56.
Red-Strake 2, 4, 8, 10, 14,18,19,29, 32, 33,35,38,40,58,59,65, Rousseting 16. Stoking 16. Under-Leaf 65. Wood-cock 64.
Aprill 47.
Approach *vide* Graffing.
Arrable 20,22.
Aspect 22.

B.

Baking *vide* Apple.
Bark 15.
Beere 1.
Berberies 9
Birch 16.
Birds 12.
Blasts 33,34,
Blossomes p.3,66.
Boiling 56,57,62,
Bottling 32, 38, 44, 45, 46, 47,48,49. 53,58,62,66.
Brochin8 32,45,58
Budds 11

C.

Cabinets 25.
Canary *vide* Wine.
Cask *vide* Vessel.
Cellar 38,47,62,66.
Challenge 3,4.
Chance 8.
Chayree 25.
Cherries 15, 25. Cherry-Wine, *vide* Wine.
Cider 2,3,4,8,14,18. By Dr. *Beale*,29. Sir *P. Neile*, 39. Mr. *Newbery*,52. Dr. *Smith*,58. Mr. *Taylor*, 59. Mr. *Callwal*, 63, &c.
Cion 11,17.
Clay 9,10,20,33.
Clarifying *vide* Fining.
Clary 38.
Clove-Gilly-flowers, *vide* Wine.
Clownes 14.
Codlin *vide* Apple.
Colour 35,57.
Columella 17.
Coffee 3.
Commons 2,20,21.
Compost 7.
Cold 58. *vide* Cellar.
Cordial 37.
Corn 67.
Curiosity 20.

D.

Diet 3.
Diluting *vide* Water.
Distance 2,21,22,34.
Distillation 38,57,58.
Dorcet-shire 65.
Drawing *vide* Broaching.
Drink 3.
Dwarfes 10.

E.

E. pag.

East vide Wind.
Ebony 25.
Elm 14,16.
Encouragement 20.
English 3.
Experiments 14.

F.

Eavor 16.
Fencing 22,23.
Fermentation 19, 32, 37, 38, 40,41 ad 49,53,55,58,61,62,64,66.
Fining 55,58,65,66.
Fountain 38.
Fragrancy 66.
Fret 47,49.
Frosts 33.
Fruit, Fruit-trees { 1, 2, 12, 13,33,34,65, vide Table.
Fruiterer 2,52.

G.

Garden 33,
Gathering 46,60,63,65.
Ginger 37.
Glocester-shire 18,58,63.
Graffs 8,10,ad p.16.
Graffing 11,19,34,36,63.
Grapes 40,43,47.
Gravell 9,20.
Green-Fruit vide Fruit.
Ground 19.
Gun-stock 25.
Grinding vide Pressing.

H.

Ham-lacy 29.
Head-lands 2.
Health 3.
Heat 58.
Hedg rowes 2,23.
Hereford shire 2,39,38,40,59,60.
Hills 20.
Hoarding 32,52,54,58,60,63,65.
Hollowness 12.
Hopps 1,52.
Hypochondria 3,30.

J.

Jarsey 56,57.
Imposture 14.
Improvement 1,13,16,36.
Inclosure vide Common.
India 3.
Infirmity 16.
Infusion 9.
Inoculation vide Graffing.
Instrument-maker 25.
Juniper Berries 37,36.

K. pag.

Kent 2.
Keeping 58.
Kernell 7,8,9,13,14.
Kings-Chapell 29.

L.

Leaking 54.
Leaven vide Fermentation 32.
Lee 41,42,43,44,46,47,50.
Levelling 20.
Lopping 24.
Lungs 37.

M.

Meliorating vide Improvement.
Mellowing 60, vide Ripeness.
Mixture 38,56,64.
Moisture 58.
Moon 13.
Mustard 32,37,42,55.
Musts vide Apples.
Mustiness 55,56,

N.

Name 35.
Nature 16.
November 46.

O.

Order 20.
Ortyard 10,20,33,34.

P.

Palladius 36.
Palat 16
Pasture 63
Peares 12,7,9,10,11,16,31,32,33,35, 36,58,60,63. Barland and Bosbury p.14,19,36 60. Bery 8. Drake Pear 64. Harpary 64. John Pear 64. Lullam 64. Mary 64. Oken-Pin 14. Pigstaile 24. Squash 63,64. Tergovian 13.
Peare-trees 19,20.
Perrie 13,19,24,34,36,40,49,63.
Piercing vide Broching,
Pith 9.
Place 20,52.
Planting 2.
Plow, Plowing { 10,34.
Plums 37.
Poor 2.
Press, Pressing { 63,66.
{ 30,31,43,48,55,57,58,60,61,
Pruning 24.
Purifing vide Fining

Q.

Quantity 60,61,65.
Quick-sets 24.
Quince 17

Quin-

Quincunx 20.

R

Rain 12.
Raisins 32.
Raspis *vide* Wine
Refrigeratorie *vide* Cellar
Rhamnus 16.
Rheumes 66.
Ripeness 31,60.
Rock 9.
Royal Society 1,4,5.
Root 16,17,21.
Rottenes 52,53,55,58,66.

S

Sap 11.
Salt 9,30.
Sand *vide* Cellar.
Sculpture 25.
Season 12,13,32,46,47,58,63.
Sharpnes 55,65.
Shoot 12.
Soil 4,8,10,29,33,60,63.
Sophistication 4.
Sowrenes 54.
Species 15,16.
Spices 11.
Spirits 3,18,38,53,56,57,58,61,62.
Spleen *vide* Hypochondria.
Stocks 7,8,10,11,13,14,15,16,17,21,22,24,
Stomack 30,31,33,40.
Stones 9,16,21.
Stools 24.
Stopping 61,64, *vide* Vent:
Straining 48,61,64.
Straw 47,
Suggar 32,
Sulphur 32.
Summer-fruit 46.
Surfeit 40.
Sweating *vide* Hording. 46,60.
Swine 20,36,60,63.

T

Table-Fruit 8,13.
Tables 25.
Taste 48.
Tenant 2.
Teeth 66.
Timber 24.
Toughnes 57.
Trade 3.
Transplanting 10,12,21,22.
Transporting 12,13.
Tunning 45,48,61,64.

V

Variety 3, *vide* Mixture.
Vent 53,64, *vide* Stopping
Vertues 16.
Vessel 54,58,61,66.
Vines 11,15.
Vinous Liquors 41.
Vintners 3.
Virgil 17,
Usefulnes 20,24,25.

W

Water 30,56,64,66.
Wages 20.
Wine 3,4,8,30,39,43,47,49,58,59.
Canary 38,40. Cherry 37. Gilly. flo. 37. Raspis 17. Rhenish 65. Verdea 40. Zerres, *vide* Vinous Liquors.
Windfalls 54.
Windines 37,62.
Winds 11,12,47.
Wonders 14,17.
Worcester-shire 60.
Working *vide* Fermenting.
Wringing *vide* Press.

The *Table* to the *Kalender*.

It might seem impertinent to have added a *Table* to a *Book* of so small a *Volume*, and which seems to be of it self but a *Table*: But since it may prove advantageous for the saving of *time*, at *once* to learn the whole *Culture* of any *Plant*, as the *Particulars* are sprinckled the several *Pages*; the *Authour* has thought fit to *Collect*, and annex it.

Ablaqueation Page 8,26.
Abricots 18,20,26.
Acacia 25.
Æthiopic Apples 13.
African flower 13.
Age 26.
Agriculture 7.
Alaternus 11,13,15,23,25,27.
Alesanders 12.
Aloes 13,24,29.
Althæa 29.
Amaranthus 13,17,21.
Amomum Plinii 13,21,25.
Angelica 22,
Anemonies 9,13,15,17,19,21,23,25. 27,31.
Aniseeds 10.
Antirrhinum 17.
Annuals 15,25.
Apples 18,24.
April 14,15.
Arbutus 23,25.
Artichocks 14,24,28.
Aspargus 12,13,25,28.

Auguſt pag. 22,23.
Aviaries 11,13,19.
Auricula 9,13,15,19,23,25,29.
Autumnals 25.

B

Balſamina 13,23.
Barba Jovis 15,25,1.
Baſil 12,14,16.
Bayes 13,31.
Beans 10,14,16,28,30.
Bees 8,10,12,14,16,18,20,22,24,30. *vide* Hives
Beetes 12,22.
Birds 11,13.
Blanching 13.
Box 13,15,21.
Budding *vide* Inoculating.
Buds 22,24.
Bugloſs 12.
Bulbs 21,23,25,31.

C

Cabbages 10,12,16,20,22,24,28.
Camomile 13,25.
Candy-Tufts 15,25.
Canna Ind. 13,21.
Cankers 10.
Capillaries 25
Capſicum 13,21.
Carnations 9,11,13,15,17,18,19,21,23, 27,29.
Carpet *vide* Walks.
Carrob 13.
Carrots 10,12,22,28,
Caſes 15,25,29.
Caterpillars 10.
Cats 25.
Cauly-flower 8,10,22,24,28.
Chamæ Iris 13.
Chamælæa 25.
Cherries 8,18,19.
Chervile 8,12,18,22.
Ciſtus 24.
Climate 7.
Clipping 15,21.
Cloves *vide* Carnations.
Colchicum 21,23.
Columbines
Compoſt *vide* Stercoration, Dung, Soil, 28.
Conſervatory 13,15,17,25,29,31,32,33.
Contemplation 5.
Convolvulus 13.
Corn-ſallet 10,22.
Creſſus 12.
Crocus 21,23,25,31.
Crown Imperial 19,21,25.
Cucumbers 12,14.
Cutting pag. 6.
Cyanus 15.
Cyons 8,
Cypreſſe 13.27.
Cyclamen 13,15,19,21,23,25.
Cyder 22,24,26,30.
Cytiſus 19,25,29.

D

Dactyls 13,25.
Daffodils *vide* Narciſſus.
Dates *vide* Dactyle.
Datura 13.
December 30,31.
Dens Caninus 19,21,23.
Delphinium 11,15,23,25.
Digging 8. *vide* Trenching.
Digitalis 15,23,25. *vide* Fox-glove.
Diſtilling *vide* Laboratory.
Dreſſing 5
Drones 20
Dung *vide* Compoſt, Soil, Stercoration
Dwarfs 26

E

Earthing-up 24.
Endive 12,22.
Exotics 13,15.
Experience 5,6,7.

F

February 10,11.
Felicity
Fennel 5.
Fibrous Plants 12.
Firr 15,25,29.
Flos-Cardinalis 13,15,25.
Flowers 15,25.
Foggs 6,7.
Foreſt-Trees 25.
Fountain Pipes 29.
Fox-gloves 31.
Fraxinella *vide* Digitalis.
Fritillaria 23.
Froſt 19,21,23.
Fruit and Fruit-trees 9,13,29,30,31, 6,7,8,10,12,24. 26,30. *vide* Gathering.

G

Gaard'ner } 5,6,7.
Gardine }
Garlick 10,22.
Garnſey-Lilly 15.
Gathering 24,26,28.
Gentianella 13.
Geranium 13,25.
Gilly-flowers *vide* Carnations.
Gladiolus 21.
Gourds 12.
Granads *vide* Pome-Granads.
Graffing

Grafting } pag. 8,10,12.
Graffs } 15,21,26.
Green-house vide Conservatory.
Greens 13,15,21,23,25,29.
Groves 29.

H.

Health 5.
Hedysarum 13.
Helleborus 13,15,25.
Hepatica 13,15,23,25.
Herbs-dry 18.
Hives vide Bees. 8.
Holy-hoc 15,23,27.
Hops 10.
Hot-bed 9,10,12,13,15.
Howsing 29.
Humble-plant 13.
Hyacinth vide Jacynth. 13,23.
Hyssop 14.

I.

Jacynth vide Hyacinthus. 13,19,23.
January 8,9.
Jasmine 13,15,19,23,25,29.
Inoculating vide Budding. 13,18,19,20,
21,22,23,25.
Insects 18,20,21,24.
July 22,21.
June 18,19,23.
Iris 19,21,25,27.

K.

Keri 13
Kernels 9,10,12,26,30.
Kitchin-Garden 26.
Knots 21.

L.

Labour 5,
Laboratory vide Distilling. 16,18.
Larks-spur vide Delphinium. 11.
Lavander 12,14.
Laurel 21.
Layers } 10,13,20.
Laying } 21,23,25.
Leaves 27,29.
Leeks 13.
Lemmons 13,15,23,25.
Lentiscus 13.
Lettuce 8,12,16,18,20,22,24,26.
Leucoium 13,15,21.
Lilie 23.
Lilac 29.
Lupines 13,15.
Lychnis 25.

M.

Majoran 12.14,16.
March 12,13.
Marcoc 13,25.
Marum-syriacum pag. 15,25.
Marragon 19,23.
Mary-gold 10,15,22.
Matricaria 13,15.
May 16,17.
Medica 15.
Medicinal Plants 12,24.
Melons 10,12,14,16,28.
Memory 7.
Method 6,7.
Mirabile Peru 13,21.
Moon 6.
Month 5,6,7.
Mok 8,10,25.
Mowing 15.
Murals vide Walls.
Muscaris 19.
Muscipula 15.
Myrrhe 13.
Myrtil 13,15,19,21,23,25.

N.

Nailing vide Pruning. 8,10,30.
Narcissus vide Tuberose. 15,19,
23,25.
Nasturtium 13,21,20.
Nectarine 10,13.
Neglect 6.
Nigella 25.
Nights 13.
November 28,29.
Nursery 8,9,28,30.

O.

Occasion 6.
October 26,27.
Oleander 13,15,23,25.
Onions 10,12,22,24.
Oranges 13,15,16,21,23,25,31.
Orchard 26.

P

Palisades 10.
Paradise 5.
Parsley 10,12.
Parterr vide Knots.
Parsnips 10,12,22,24,28.
Passion-flower vide Maracoc.
Peach 12,18,20.
Pear 8,12,18,24,26.
Pease 12,20,28,30.
Peneroyal 14.
Peonies 29.
Perennial vide Green.
Perry 22,26.
Phaseoli 13.
Phillyrea 13,15,23,25,27.
Pinus 13,15,25.
Pinks 13,15.

Pipes

Pipes *vide* Fountains. *pag.*
Planting 6,12,26.
Plashing 10,26.
Plums 8,18,24.
Pomace *vide* Cider. 30.
Pomum-Amoris 13.
Pome-Granad. 15,21,23.
Poppy 25.
Potatos 10,28.
Pot-herbs 10.
Pots 9,13,25.
Prime-rose 13,15,23,25.
Pruning 6,8,10,13,15,20,22,25,26,30.
Purslain 12,14,16,22.

Q

Quick-sets 8,10.

R

Rain 9,21,25,27,31.
Ranunculus 9,13,15,17,19,21, 23,25,27,29,31.
Raddish 8,10,12,18,20,24,26.
Removing *vide* Transplanting. 23.
Rosemary 12,14.
Roses 12,19,22,23,26.
Roots 10.

S.

Saffron *vide* Crocus. 23.
Sage 12.14.
Salleting 8.
Savoury 14.
Scabious 15,19.
Scorpoides 15.
Scorzonera 12.
Scurvy-grass 22,24.
Sellery 12.
Secresses 6.
Season 5,6.
Seeds 19,22,23,26.
Seedlings 28,29.
Senses 7.
Sedum 25,29.
Sensitive-Plant 13.
September 24,25.
Shade 13.
Shelter 29,13.
Shrubs 26.
Signes 5.
Skirrets 12,24.
Slips *pag.* 21,23.
Smalege 12.
Snailes 14,20.
Snow 9,13,29.
Soil 8.
Sorel 12.
Sowing 25,27.
Spinach 10,22,24.
Stalks 17.
Standards 26,28,30.
Stercoration *vide* Compost. 12,30.
Stock gilly-flowers *vide* Leucöium.
Stocks 8,13,22,26,28,30.
Stones 9,29,30.
Stove 29,31.
Strawberries 12,24.
Suckers 22.
Sun 13,22.
Swarmes *vide* Bees. 16.
Sweeping 29.
Sweet-Williams 13.
Syringa 29.

T

Tobacco 12.
Thyme 12,14,16.
Time 6.
Tools 8.
Tuberose *vide* Narcissus. 13,15,25,27.
Tulips 13,15,17,19,21,23,25,27,29.
Turneps 12,14,22,28.
Transplanting *vide* Removing. 8,13,15, 17,24,28.
Trenching *vide* Digging. 8,26,28,30.

V

Variegation 27.
Vermine 9,31.
Vines 8,10,18,12,26,30.
Vineyard 7,20.
Violets 15,25.
Volubilis 13.

W

Walks 21,27,29.
Walls 8,10,22,26,28,30.
Water 17,18,20,21,23,29.
Weeding 15,16,21,27.
Wither'd Flowers 21.
Winds 13,21,24,25,29.
Worms 10,14,27.

SYLVA:
OR, A
DISCOURSE
OF
Forest-Trees,
AND
The Propagation of *Timber* in His MAJESTIES Dominions, &c.

Tuque ades, inceptumque una decurre laborem,
O decus, ô famæ merito pars maxima nostræ,
CAROLIDE, pelagoque volans da vela petenti:
Da facilem cursum, atque audacibus annue cœptis:
Ignarosque viæ mecum miseratus agrestes
Ingredere, & votis jam nunc assuesce vocari.

The Introduction.

1. SInce there is nothing which seems more fatally to threaten a *Weakning*, if not a *Dissolution* of the strength of this famous and flourishing *Nation*, then the sensible and notorious decay of her *Wooden walls*, when either through *time*, *negligence*, or other *accident*, the present *Navy* shall be worn out and impair'd; it has been a very worthy and seasonable Advertisement in the Honourable the principal *Officers* and *Commissioners*, what they have lately suggested to this *Illustrious Society*, for the timely prevention and redress of this intollerable defect. For it has not been the late increase of *Shipping* alone, the multiplication of *Glass-works*, *Iron-Furnaces*, and the like, from whence this impolitick diminution of our *Timber* has proceeded; but from the disproportionate spreading *Introduction.*

of *Tillage*, caused through that prodigious havock made by such as lately professing themselves against *Root* and *Branch* (either to be re-imburs'd of their *Holy* purchases, or for some other sordid respect) were tempted, not only to *fell* and *cut* down, but utterly to *grub up*, *demolish*, and *raze*, as it were, all those many goodly *Woods*, and *Forests*, which our more prudent *Ancestors* left standing, for the Ornament, and service of their *Country*. And this *devastation* is now become so *Epidemical*, that unless some favourable *expedient* offer it self, and a way be seriously, and speedily resolv'd upon, for the future repair of this intollerable *defect*, one of the most glorious, and considerable *Bulwarks* of this *Nation*, will, within a short time, be totally wanting to it.

2. To attend now a *spontaneous* supply of these decay'd *Materials* (which is the vulgar, and natural way) would cost (besides the *Incloſure*) some entire *Ages* repose of the *Plow*: Therefore, the most expeditious, and obvious *Method*, would (doubtless) be by *one* of these *two* ways, *Sowing*, or *Planting*. But, first, it will be requisite to agree upon the *Species*; as what *Trees* are likely to be of greatest *Use*, and the fittest to be cultivated; and then, to consider of the *Manner* how it may best be effected. Truly, the *waste*, and *destruction* of our *Woods*, has been so universal, that I conceive nothing less then an universal *Plantation* of all the sorts of *Trees* will supply, and well encounter the defect; and therefore, I shall here adventure to speak something in general of them *all*; though I chiefly insist upon the propagation of *such* only as seem to be the most wanting, and serviceable.

3. And first by *Trees* here, I consider principally for the *Genus generaliſſimum*, such *Lignous* and woody *Plants*, as are *hard* of substance, *procere* of *stature*; that are *thick* and *solid*, and stifly adhere to the *Ground* on which they stand: These we shall divide into the *Greater* and more *Ceduous*, *Fruticant* and *Shrubby*; *Feras* and wild; or more *Civiliz'd* and domestique; and such as are *Sative* and *Hortensial* subalternate to the other; But of which I give only a touch, distributing the *rest* into these two *Classes*, the *Dry*, and the *Aquatic*; both of them applicable to the same civil uses of *Building*, *Utensils*, *Ornament*, and *Fuel*; for to dip into their *Medicinal* virtues is none of my *Province*, though I sometimes glance at them with due *submission*, and in few *Instances*.

4. Among the *dry*, I esteem the more principal, and solid, to be the *Oak*, *Elme*, *Beech*, *Ash*, *Chesnut*, *Wall-nut*, *&c.* The less principal, the *Service*, *Maple*, *Lime-tree*, *Horn-beam*, *Quick-beam*, *Birch*, *Hasel*, *&c.* together with all their *sub-alternate*, and several kinds.

—— Which of how many sorts they are, We can't at present here stand to declare. *Sed neque quàm multæ ſpecies, nec nomina quæ ſint, Eſt numerus*, Geor. 2.

5. Of the *Aquatical*, I reckon the *Poplars*, *Asp*, *Alder*, *Willow*, *Sallow*, *Osier*, *&c.* Then I shall add a word or two, for the encouragement of the planting of *Fruit-trees*, together with some less *vulgar*, but no less *useful* Trees, which, as yet are not *endenizon'd* amongst us, or (at least) not much taken notice of: And in pursuance hereof,

of, I shall observe this *order*: First, to shew how they are to be *Raised*, and then to be *Cultivated*; By *raising*, I understand the *Seed* and the *Soil*; by *Culture* the *Planting*, *Fencing*, *Watering*, *Dressing*, *Pruning* and *Cutting*; of all which briefly.

6. And first for their *Raising*, some there are,

Spring of themselves unforc't by human care, ——*Nullis hominum cogentibus, ipsa Sponte sua veniunt*——

Specifying according to the various disposition of the *Air* and *Soil*;

Some from their Seeds arise. *Pars autem posito surgunt de semine.*

As the *Oak*, *Chess-nut*, *Ash*, *&c.*

Some to their Groves from their own Roots do spring, *Pullulat ab radice aliis densissima Sylva.*

As the *Elme*, *Alder*, *&c.* and there are others,

Grow without Root *Nil radicis egent*——

as *Willows*, and all the *Vimineous* kinds, which are raised of *Sets* only.

These wayes first Nature gave, *Hos natura modos primùm dedit*——

For thus we see there are more ways to the *Wood* than one; and she has furnish'd us with variety of expedients.

7. And here we might fall into a deep *Philosophical* Research, whether the *Earth* it self in some place thereof or other, even without *Seed*, *Branch* or *Root*, &c. would produce every kind of *Vegetable*, as it manifestly does, divers sorts of *Grasse* and *Plants*? (*viz.*) the *Tre-fole* or *Clover* in succulent land; In dry ground *May* and *Rag-weeds*; In the very moyst, *Argentina*, *Flaggs*, &c. And the very barren *Ferne*, *Broome*, and *Heath*, &c. So *Virgil* notes sterile places for the *Pitch-tree*; we our wett and *Uliginous* for *Birch*, *Alder*, &c. The more lofty, poor and perflatile for *Eugh*, *Guiniper*, *Box*, and the like; and we read in the *Natural Histories* of divers *Countries*, that the *Cedar*, *Palmetos* *Queen-Pines*, *Ebony*, *Nutmeg*, *Cinnamon*, &c. For Trees; the *Tulip*, *Hyacinth*, *Crocus*, &c. For *Flowers*, are sometimes, and in some regions *Aborigines*, descended immediately from the *Genius* of the *Soyls*, *Climate*, *Sun*, *Shade*, *Air*, *Winds*, *Water*, *Niterous-Salts*, *Rocks*, *Bankes*, *Shores*, and (as the *Negros-Heads* in the *Barbados*) even without *Seed*, or any perceptible rudiment. But with all this we are not satisfied without supposing some previous *seminal* disposition lurking, and dispers'd in every part of the *Earth*, in what *Moleculæ* or subtile *contextures* we shall not enquire, but though happly not at first so perfect as the maturer *Seeds* of their after peculiar *Plants*; yet such as are fit for the *Sun* and *Influences* to operate on, 'til they have prepar'd, discuss'd, and excited their *Seminal* and *Prolifique* vertue to exert it self and awake out of sleep, in which they lay as in their *causes*; And free themselves from those impediments which hindred their *Specification* and Nativity: This Conception the learned *Gassendus* would illustrate by the latent *fire* in *Flints*, which never betrays it self

'til

'til it be forced out by *Collision*; but which yet methinks, does not so fully inlighten this *Hypothesis*, which we only hint for Method and Introduction onely: For the design of this *Discourse* is not to perswade *Men* to sit still, and let *Nature* work alone, but to ayd and assist *her* as much as they are able from *Seeds* and *Plants* already perfected, and qualified for more speedy *Propagation*. Most Ingenious, in the mean time is what some upon an accurate and narrow guesse, have not feared to pronounce; namely, that all planting by *Seed*, was but a kind of *Inoculation*; and propagation by *Eyons* and *Sprouts*, but a *Subterranean Graffing*: And upon this account I am the more willing to assent, that in *Removing* of wild Trees, taken out of incumber'd places, (so it be perform'd with all due circumstances) there may happen considerable *Improvements*; since, as there is something in *Super-graffing*, or the repetition of *Graffing* for the inlargement, and melioration of *Fruit*; so there may be also in a carefull *Removal*; especially the *Tree* being of a kind apt to dilate its *Roots*, and taken whilest those *Roots* may be safely, and intirely transferr'd; and likewise, because it is presum'd that most *Trees* propagated by *Seeds*, emitt a principal *Root*, very deep into the Earth, which frequently extracting but a courser *Nutriment* (though it may happly yield a close, and firmer *Timber*) yet is not so apt to Shoot and spread, as what are by *Removal* deprived of that *Root*, and by being more impregnate with the *Sun*, *Dews* and heavenly *Influences* neer the surface, inabled to produce larger, more delicate and better tasted *Fruit*; supposing *Nutts*, *Mast*, or *Berries*, for we would not go out of our *Forest* for instances. And yet even in these desents of the *Top-Root*, it sometimes penetrating to a Veine of some rich *Marle* or other Mould, the extraordinary flourishing and expedition of growth, will soon give notice of it. But to make some *Trial* of this, 'twere no difficult matter, when one plants a *Nursery* or *Grove*, to experiment what the *Earth*, as far as the *Roots* are like to reach, will advance and discover to us.

8. In the mean time, it has been stifly controverted by some, whether were better to raise *Trees* for *Timber*, and the like uses, from their *Seeds* and first *Rudiments*; or to *Transplant* such as we find have either rais'd themselves from their *Seeds*, or spring from the *Mother roots*. Now, that to produce them immediately of the *Seed* is the better way, these *Reasons* may seem to evince.

First, because they *take* soonest. *Secondly*, because they make the straighteſt, and most uniform shoot. *Thirdly*, because they will neither require *staking*, nor *watering* (which are two very considerable *Articles*) and *lastly*, for that all *transplanting* (though it much improve *Fruit trees*) unless they are taken up the first Year, or two, is a considerable impediment to the growth of *Forest-trees*. And, though it be true, that divers of those which are found in *Woods*, especially *Oaklings*, young *Beeches*, *Ash*, and some others, spring from the self-sown *mast* and *keys*; yet, being for the most part dropp'd, and disseminated amongst the half rotten sticks, musty leaves, and perplexities of the *mother-roots*, they grow scraggy;

gy; and being over-dripp'd become squalid and mossie,

Which checks their growth, and makes their bodies pine. *Crescentique adimunt fœtus, uruntque ferentem.* Geo. 2.

Nor can their roots expand, and spread themselves as they would do if they were *sown*, or had been *planted* in a more open, free, and ingenuous *Soil*. And that this is so, I do affirm upon *Experience*, that an *Acorn* sown by hand in a *Nursery*, or ground where it may be free from these encumbrances, shall in two or three Years out-strip a *Plant* of twice that age, which has either been self-sown in the *Woods*, or removed; unless it fortune, by some favourable accident, to have been scattered into a more natural, penetrable, and better qualified place: But this disproportion is yet infinitely more remarkable in the *Pine*, and the *Wall-nut tree*, where the *Nut* set into the ground does usually overtake a *Tree* of ten years growth which was planted at the same instant; and this is a *Secret* so generally mis-represented by most of those who have treated of these sort of *Trees*, that I could not suffer it to pass over without a particular *remark*; so as the noble *Poet* (with pardon for receding from so venerable *Authority*) might be mistaken, when he delivers this observation as *universal*, to the prejudice of *Sowing*, and raising *Woods* from their Rudiments:

Trees which from scattered Seeds to spring are made
Come slowly on; for our *Grand-childrens* shade.

Nam quæ seminibus jactis se sustulit arbos
Tarda venit; seris factura nepotibus umbram.
Geor. l. 2.

And indeed I know divers are of this opinion; and possibly in some luckier *Soils*, and where extraordinary care is had in *Transplanting*, and removing cumbrances, &c. There may be reason for it; But I affirm it ὡς ἐπὶ πολὺ, and for the most part, and find I have the suffrage of another no inelegant *Poet*, if not in a full assent to my *Assertion*, yet in the choyce of my procedure for their perfection.

——Though *Suckers* which the *Stock* repaire,
Will with thick Branches crowd the empty Aire,
Or the *Ground-Oak* transplanted, boughs may shoot;
Yet no such *Grov's* do's with my fancy suit
As what from *Acorns* set on even rows
In open fields at their due distance grows.
What though your Ground long time must *fallow* ly,
And *Seedling-Oakes* yield but a slow supply?
No walks else can be for like beauty prais'd
For, certain 'tis, that *Plants* from *Acorns* rais'd,
As to the *Center* deeper *fivers* spread,
So to the *Zenith* more advance their head:
Be it that *Plants* for natural moysture pine,
And as expos'd at Change of *Soile* decline;
Or that the *Acorn* with its native mould
Do's thrive, and spread, and firme alliance hold.

——*Quamvis ipsa de stirpe parentis*
Pullulet, & tenues tollat se quercus in auras,
Aut mutata solo, ramis exultet opacis;
Forma tamen nemoris non sit mihi gratior ulla,
Quam quod per campos, posito de semine, crevit
Et quamquam sit agro prælongum tempus inerti
Durcendum, ac tardæ surgant de semine quercus:
His tamen, his longe veniunt felicius umbræ.
Nam certum est de glande satas radicibus imis
Altius in terram per se descendere plantas:
Majoresque adeo in cœlum profundere ramos.
Seu quod dediscant mutatam semina matrem,
Degenremque ferant alieno ex ubere prolem:
Sive quod ipsa sibi cognatæ inolescere terræ
Glans primo melius paulatim assuevit ab ortu.
Rapinus Hort. l. 2.

CHAP. I.

Of the Soile, and of Seed.

Soile.

1. HEre, for *Methods* sake, something it were expedient to premise concerning the *Soile*; and indeed I do acknowledge to have observ'd so vast a *difference* in the Improvement of *Woods*, by that of the *Ground*, that it is at no hand to be neglected: But this being more than Transitorily touch'd in each *Chapter* of the ensuing *Discourse*, I shall not need to assign it any apart, when I have affirm'd in General, that most *Timber-Trees* grow and prosper well in any tollerable *Land* which will produce *Corn* or *Rye*, and which is not in excesse *Stony*; in which nevertheless there are some *Trees* delight; or altogether *Clay*, which few, or none do naturally affect; And yet the *Oak* is seen to prosper in it, for its toughnesse preferr'd before any other by many Workmen, though of all *Soyls* the *Cow-pasture* do certainly exceed, be it for what purpose soever of planting *Wood*. Rather therefore we should take notice how many great *Witts* and *ingenious* Persons, who have leasure and faculty are in pain for *Improvements* of their *Heaths* and barren *Hills*, cold and starving places, which causes them to be neglected and despair'd of; whilest they flatter their hopes and vain expectations with fructifying liquors, *Chymical Menstrues* and such vast conceptions; in the mean time that one may shew them as *Heathy* and *Hope-less* grounds, and barren *Hills* as any in *England*, that do now bear, or lately have born *Woods*, *Groves* and *Copses* which yield the *Owners* more *wealth*, than the richest and most opulent *Wheat-Lands*: And if it be objected that 'tis so long a day before these *Plantations* can afford that gain; The *Brabant* Nurseries, and divers home-plantations of *Industrious Persons* are sufficient to convince the gain-sayer. And when by this *Husbandry* a few *Acorns* shall have peopl'd the Neighboring *Regions* with young *Stocks* and *Trees*; the residue will become *Groves* and *Copses* of infinite delight and satisfaction to the *Planters*. Besides, we daily see what *Course Lands* will bear these *Stocks* (suppose them *Oaks*, *Wall-nutts*, *Chess-nutts*, *Pines*, *Firr*, *Ash*, *Wild-Pears*, *Crabbs*, *&c.*) and some of them, as for instance the *Peare* and the *Firr* or *Pine*, strike their *Roots* through the roughest and most impenetrable *Rocks* and clefts of *Stone* it self; and others require not any *rich* or *pingued*, but very moderate *Soile*; especially, if committed to it in *Seeds*, which allyes them to their *Mother* and *Nurse* without renitency or regrett: And then considering what assistances a little *Care* in easing and stirring of the ground about them for a few years does afford them: What cannot a strong

strong *Plow*, a *Winter* mellowing, and *summer* heats, incorporated with the pregnant *Turfe*, or a slight assistance of *Lime* performe even in the most unnatural and obstinate *Soile*? And in such places where anciently *Woods* have grown, but are now unkind to them, the fault is to be reformed by this Care; and chiefly, by a Sedulous *extirpation* of the old remainders of *Roots*, and latent *Stumps*, which by their *mustiness*, and other pernicious qualities, sowre the ground, and poyson the *Conception*; And herewith let me put in this note, that even the *Soile* it self does frequently discover and point best to the particular *Species*, though some are for all places alike: but I shall say no more of these *particulars* at this time, because, the rest is sprinkl'd over this whole *Work* in their due places; Wherefore we hasten to the following *Title*, namely, the choyce and ordering of the *Seeds*.

2. Chuse your *Seed* of that which is perfectly *mature*, *ponderous* and *sound*; commonly that which is easily shaken from the *boughs*, or gathered about *November*, immediately upon its spontaneous fall, or taken from the tops and summities of the faireſt and soundest *Trees*, is best, and does (for the most part) direct to the proper season of *interring*, *&c.* According to *Institution*. For, *Seed.*

Nature her self who all created first,
Invented sowing, and the wild Plants hurs't:
When Mast and Berries from the Trees did drop,
Succeeded under by a numerous Crop.

Nam specimen sationis, & insitionis origo
Ipsa fuit rerum primum natura creatrix:
Arboribus quoniam bacca, glandesque caducæ
Tempestiva dabant pullorum examina subter, &c.
Lucret. *l.* 5.

Yet this is to be consider'd, that if the *place* you sow in be too cold for an *Autumnal* semination, your *Acorns*, *Mast*, and other *Seeds* may be prepared for the *Vernal* by being barrel'd, or potted up in moist *Sand* or *Earth stratum* S. S. during the *Winter*; at the expiration whereof you will find them *sprouted*; and being committed to the Earth, with a tender hand, as apt to *take* as if they had been sown with the most early, nay with great advantage: by this means, too, they have escaped the *Vermine* (which are prodigious devourers of *Winter* sowing) and will not be much concern'd with the increasing heat of the *Season*, as such as being crude, and *unfermented* are newly sown in the beginning of the *Spring*; especially in hot and loose Grounds; being already in so fair a progress by this artificial preparation; and which (if the provision to be made be very great) may be thus manag'd. Chuse a fit piece of *Ground*, and with boards (if it have not that *position* of it self) design it three *foot* high; lay the first *foot* in fine Earth, another of Seeds, *Acorns*, *Mast*, *Keys*, *Nuts*, *Haws*, *Holly-beries*, *&c.* Promiscuously, or separate, with (now, and then) a little *Mould* sprinkled amongst them: The third *foot* wholly Earth: Of these preparatory *Magazines* make as many, and as much larger ones as will serve your turn, continuing it from time to time as your *store* is brought in. The same for ruder handlings, may you also do by burying your Seeds in dry *Sand*, or pulveriz'd Earth, *Barrelling* them (as I said) in *Tubs*, or laid in heaps in some deep *Cellar* where the rigour of the *Winter* may least prejudice them; and I have fill'd old *Ham-*

pers, *Bee-hives*, and *Boxes* with them, and found the like advantage, which is to have them ready for your *Seminary*, as before hath been shew'd, and exceedingly prevent the season. There be also who affirm, that the carefull cracking and opening of *Stones* which include the *Kernels*, as soon as ripe, precipitate *Growth* and gain a *years* advance.

3. But to pursue this to some farther Advantage; as to what concerns the election of your *Seed*, It is to be consider'd, that there is vast difference, (what if I should affirm more than an *hundred years*) in *Trees* even of the same *growth* and *Bed*, which I judge to proceed from the variety and quality of the *Seed*: This, for *instance*, is evidently seen in the heart, *procerity* and stature of *Timber*; and therefore chuse not your *Seeds* alwaies from the most *Fruitful-trees*, which are commonly the most *Aged*, and decayed; but from such as are found most *solid* and *fair*: Nor, for this reason, covet the largest *Acorns*, *&c.* (but as *Husband men* do their *Wheat*) the most *weighty*, *clean* and *bright*: This Observation we deduce from *Fruit-trees*, which we seldom find to bear so kindly, and plentifully, from a *sound* stock, *smooth* Rind, and *firm* Wood, as from a *rough*, *lax*, and *untoward* Tree, which is rather prone to spend it self in *Fruit*, (the ultimate effort, and final endeavour of its most delicate *Sap*,) than in solid and close *substance* to encrease the *Timber*. And this shall suffice, though some haply might here recommend to us a more accurate *Microscopical* examen, to interpret their most secret *Schematisms*, which were an over *nicity* for these great *Plantations*.

4. As concerning the *medicating*, and *insuccation* of *Seeds*, or enforcing the Earth by rich and generous *Composts*, *&c.* for *Trees* of these kinds, I am no great favourer of it; not only, because the *charge* would much discourage the *Work*; but for that we find it unnecessary, and for most of our *Forest-trees*, noxious; since even where the ground is too fertile, they thrive not so well; and if a *Mould* be not proper for one sort it may be fit for *another*: Yet I would not (by this) hinder any from the trial, what advance such *Experiments* will produce: In the mean time, for the simple *Imbibition* of some *Seeds* and *Kernels*, when they prove extraordinary *dry*, and, as the Season may fall out, it might not be amiss to *macerate* them in *Milk*, or *Water* only, a little *impregnated* with *Cow-dung*, *&c.* during the space of twenty four hours, to give them a *spirit* to sprout, and *chet* the sooner; especially, if you have been retarded in your *sowing* without our former preparation.

5. Being thus provided with *Seeds* of all kinds, I would advise to raise *Woods* by sowing them *apart*, in several places destin'd for their growth, where the *Mould* being prepar'd (as I shall shew hereafter) and so qualified (if election be made) as best to suit with the nature of the *Species*, they may be sown *promiscuously*, which is the most natural and *Rural*; or in streight and even lines, for *Hedg-rows*, *Avenues*, and *Walks*, which is the more *Ornamental*: But, because some may chuse rather to draw them out of *Nurseries*; that

that the *Culture* is not much different, nor the hinderance considerable (provided they be early, and carefully Removed) I will finish what I have to say concerning these *Trees* in the *Seminary*, and shew how they are *there* to be *Raised*, *Transplanted*, and *Govern'd* till they can shift for themselves.

CHAP. II.

Of the Seminary.

Seminary.

1. *QVi Vineam, vel Arbustum constituere volet, Seminaria priùs facere debebit*, was the precept of *Columella*, *l.* 3. *c.* 5. speaking of *Vineyards* and *Fruit-trees*: and, doubtlesse, we cannot pursue a better Course for the Propagation of *Timber-trees*: For though it seem but a trivial design that one should make a *Nursery* of *Foresters*; yet it is not to be imagin'd, without the experience of it, what prodigious *Numbers* a very small *spot* of Ground well Cultivated, and destin'd for this purpose, would be able to *furnish* towards the sending forth of yearly *Colonies* into all the naked quarters of a *Lordship*, or *Demeasnes*; Being with a pleasant *Industry* liberally distributed amongst the *Tenants*, and dispos'd of about the *Hedge rows*, and other *Waste*, and uncultivated places, for *Timber*, *Shelter*, *Fuel*, and *Ornament*, to an incredible Advantage. This being a cheap, and laudable Work, of so much *pleasure* in the execution, and so certain a *profit* in the event; to be but *once* well done (for, as I affirm'd, a very small *Nursery* will in a few years people a vast extent of Ground) hath made me sometimes in admiration at the universal negligence.

2. Having therefore made choice of some fit place of *Ground*, well *Fenced*, respecting the *South-east*, rather than the full *South*, and well protected from the *North* and *West*;

He that for wood his Field would sow,	*Qui serere ingenuum volet agrum,*
Must clear it of the *Shrubbs* that grow;	*Liberat prius arva fruticibus;*
Cut Brambles up, and the Ferne mow.	*Falce rubos, filicemque resecate.*

Boeth. *l.* 2. *Met.*

This done, let it be *Broken up* the *Winter* before you *sow*, to mellow it; especially if it be a *Clay*, and then the *furrow* would be made deeper; or so, at least; as you would prepare it for *Wheat*: Or you may *Trench* it with the *Spade*, by which means it will the easier be cleansed of whatsoever may obstruct the putting forth, and insinuating of the tender *Roots*: Then having given it a second *stirring*, immediately before you *sow*, cast, and dispose it into *Rills*, or small narrow *Trenches* of four, or five inches deep, and in even lines, at two foot interval, for the more commodious *Runcation*, *Hawing*, and dressing the Trees: Into these *Furrows* (for a *Conseminea Sylva*)

Sylva) throw your *Oak*, *Beech*, *Ash*, *Nuts*, all the *Glandiferous* Seeds, *Mast*, and *Key-bearing* kinds; so as they lie not too thick, and then cover them very well with a *Rake*, or fine-tooth'd *Harrow*, as they do for *Pease*: Or, to be more accurate, you may set them as they do *Beans* (especially, the *Nuts* and *Acorns*) and that every *Species* by themselves, for the *Roboraria*, *Glandaria*, *Ulmaria*, &c. which is the better way: This is to be done at the latter end of *October*, for the *Autumnal* sowing; and in the lighter ground about *February* for the *Vernal*.

Then see your hopefull *Grove* with *Acorns* sown,
But e're your *Seed* into the Field be thrown
With crooked *Plough* first let the lusty *Swain*
Break-up, and stubborn Clodds with *Harrow* plain.
Then when the Stemm appears, to make it bare
And lighten the hard Earth with *Hough*, prepare.
Hough in the *Spring*: nor frequent Culture fail,
Lest noxious *Weeds* 'ore the young *Wood* prevail:
To barren ground with toyle large meanour add,
Good-husbandry will force a Ground that's bad.

Proinde nemus sparsa cures de glande parandum:
Sed tamen ante tuo mandes quam semina campo;
Ipse tibi duro robustus vomere fossor
Omne solum subigat late, explanetque subactum.
Cumque novus fisso primum de germine ramus
Findit humum, rursus ferro versanda bicorni
Consita vere novo tellus, cultuque frequenti
Exercenda, herbæ circum ne forte nocentes
Proveniant, germenque ipsum radicibus urant.
Nec cultu campum cunctantem urgere frequenti,
Et saturare simo pudeat, si forte resistat.
Culturæ: nam tristis humus superanda colendo est.
Rapinus *l.2.*

Note that 6 *Bushells* of *Acorns* will sow or plant an Aker, at one foots distance.

3. Your *Plants* beginning now to peep should be *earthed* up, and comforted a little; especially, after breaking of the greater *Frosts*, and when the swelling mould is apt to spue them forth; but when they are about an *inch* above ground you may in a *moist* season, draw them up where they are too *thick*, and set them immediately in other *lines*, or *Beds* prepar'd for them; or you may plant them in double *fosses*, where they may abide for good and all, and to remain till they are of a competent stature to be *Transplanted*; where they should be set at such *distances* as their several *kinds* require; but if you draw them only for the thinning of your *Seminary*, prick them into some empty *Beds* (or a *Plantarium* purposely design'd) at one foot *interval*, leaving the rest at two or three.

4. When your *Seedlings* have stood thus till *June*, bestow a slight digging upon them, and scatter a little *mungy*, half rotten *Litter*, *Fearn*, *Bean-hame*, or old *Leaves* among them, to preserve the *Roots* from scorching, and to entertain the moisture; and then in *March* following (by which time it will be quite consum'd and very mellow) you shall *chop* it all into the *earth*, and mingle it together: Continue this *process* for two or three years successively; For till *then*, the substance of the *Kernell* will hardly be spent in the plant, which is of maine import; but then (and that the stature of your young *Impes* invite) you may plant them forth, carefully taking up their *Roots*, and cutting the *Stem* within an *inch* of the ground (if the *kind*, of which hereafter, suffer the *knife*) set them where they are to continue: If thus you reduce them to the distance of forty foot; the Intervals may be planted with *Ash*, which may be fell'd either for *Poles*, or *Timber* without the least prejudice of the Oak, some repeat the cutting we spake of the second *Year*, and after *March* (the

(the *Moon* decreasing) re-cut them at half a foot from the *surface*; and then meddle with them no more: but this (if the *process* be not more severe than needs) must be done with a very sharp *Instrument*, and with care, least you violate, and unsettle the *Root*; which is likewise to be practis'd upon all those which you did not *Transplant*, unless you find them very thriving *Trees*; and then it shall suffice to *prune* off the *Branches*, and spare the *Tops*; for this does not only greatly establish your *Plants* by diverting the *Sap* to the *Roots*; but likewise frees them from the injury and concussions of the *Winds*, and makes them to produce handsom, streight *shoots*, infinitely preferable to such as are abandon'd to *Nature*, and *Accident*, without this discipline: By this means the *Oak* will become excellent *Timber*, shooting into streight and single *Stems*,: The *Chess-nut*, *Ash*, *&c.* multiply into *Poles*, which you may reduce to *standards* at pleasure: To this I *add*, that as oft as you make your annual *Transplanting*, out of the *Nursery*, by drawing forth the choycest *Stocks*, the remainder will be improved by a due stirring and turning of the *mould* about their *Roots*.

5. *Theophrastus* in his third Book *de Causes c.7.* gives us great caution in planting to preserve the *Roots*, and especially the *Earth*, adhering to the smallest *Fibers*, which should by no means be shaken off, as most of our *Gardners* do to trim and quicken them as they pretend, which is to cut them shorter, &c. not at all considering, that those tender *Hairs* are the very *mouths* and *Vehicles* which suck in the nutriment, and transfuse into all the parts of the *Tree*, and that these once perishing, the thicker and larger Roots, hard and less spungie, signifie little, but to establish the Stem; as I have frequently experimented in *Orange-Trees*, whose *Fibers* are so very obnoxious to rot, if they take in the least excess of wet: And therefore *Cato* advises us to take care that we bind the *mould* about them, or transfer the *Roots* in *Baskets*, to preserve it from forsaking them; For this Earth being already applied and fitted to the *overtures* and *mouths* of the *Fibers*, it will require some time to bring them in appetite again to a new *mould*, by which to repair their loss, furnish their stock, and proceed in their wonted *Oeconomy* without manifest danger and interruption: Nor less ought our care to be in the making and dressing of the *pits* and *fosses* into which we design our *Transplantation*, which should be prepar'd and left some time *open* to macerating *Rains*, *Frosts* and *Sun*, that may resolve the compacted *Salt*, render the Earth *friable*, mix and qualifie it for aliment, and to be more easily drawn in and digested by the *Roots* and analogus *Stomack* of the *Trees*: This to some degree may be artificially done, by burning of *straw* in the newly opened *Pits*, and drenching the *mould* with *Water*; especially in over dry seasons, and by meliorating barren-ground with sweet, and comminuted *letations*.

6. The Author of the Natural History, *Pliny*, tells us it was a vulgar *Tradition*, in his time, that no *Tree*, should be Removed under two years old, or above three: *Cato* would have none *Transplanted*

planted less than five fingers in *diametre*; But I have shew'd why we are not to attend so long for such as we raise of *Seedlings*: In the interim, if these directions appear too busie, or *operose*, or that the *Plantation* you intend be very ample, a more compendious *Method* will be the confused sowing of *Acorns*, *&c.* in *Furrows*, two foot asunder, covered at three fingers depth, and so for three years cleansed, and the first *Winter* cover'd with fearn, without any farther culture, unless you *Transplant* them; but, as I shewed before, in *Nurseries* they would be cut an *inch* from the Ground, and then let stand till *March* the second year, when it shall be sufficient to *disbranch* them to *one* only shoot, whether you suffer them to *stand*, or remove them elsewhere. But to make an *Essay* what *Seed* is most agreeable to the *Soil*, you may by the *thriving* of a promiscuous *Semination* make a judgement of,

What each Soil bears, and what it does refuse. *Quid quaque ferat regio, & quid quaque recuset.*

Transplanting those which you find least agreeing with the *place*; or else, by *Copsing* the *starvlings* in the places where they are new sown, cause them sometimes to overtake even their untouch'd *contemporaries*.

7. But here some may inquire what *distances* I would generally assign to *Transplanted Trees*? To this somewhat is said in the ensuing *Periods*, and as occasion offers; though the promiscuous rising of them in *Forest-Work*, wild, and natural is to us I acknowledge more pleasing, than all the studied accuracy in ranging of them; unless it be, where they conduct and lead us to *Avenues*, and are planted for *Vistas* (as the *Italians* term is) in which case, the proportion of the *Breadth* and *Length* of the *Walks*, &c. should govern, as well as the Nature of the *Tree*, with this only note; That such Trees as are rather apt to spread, than mount, as the *Oak*, *Beech*, *Wall-nutt*, &c. be dispos'd at *wider* intervals, than the *other*, and such as grow best in *Consort*, as the *Elm*, *Ash*, *Lime-tree*, *Sycomore*, *Firr*, *Pine*, &c. Regard is likewise to be had to the quality of the *Soil*, for this work: V. G. If *Trees* that affect cold and moist grounds, be planted in hot and dry places, then set them at *closer* Order; but *Trees* which love scorching and dry Grounds at farther *distance*: The like rule may also guide in situations expos'd to impetuous *Winds* and other accidents which may serve for general *Rules* in this piece of *Tactics*.

8. To leave nothing omitted which may contribute to the stability of our *Transplanted Trees*, something is to be premis'd concerning their *staking*, and securing from external injuries, especially from *Winds* and *Cattel*, against both which, such as are planted in *Copses*, and for ample *Woods*, are sufficiently defended by the *Mounds* and their closer order; especially, if they rise of *Seed*: But where they are expos'd in *single* rows, as in *Walks* and *Avenues*, the most effectual course is to *empale* them with three good quarter *stakes* of competent length set in *triangle* and made fast to one another by short pieces above and beneath; in which a few *Brambles* being

being stuck, secure it abundantly without that choking or fretting, to which *Trees* are obnoxious that are only single *Staked* and *Bushed* as the vulgar manner is; Nor is the *charge* of this so considerable, as the great *advantage*, accounting for the frequent reparations which the other will require. Where *Cattel* do not come, I find a good piece of *Rope*, tyed fast about the neck of *Trees* upon a *wisp* of *straw* to preserve it from galing, and the other end tightly strein'd to a *hook* or *peg* in the ground (as the *Shrouds* in *Ships* are fastned to the *Masts*) sufficiently stablishes my *Trees* against the *Western* blasts without more trouble; for the *Winds* of other *quarters* seldom infest us. But these *Cords* had need be well *pitch't* to preserve them from wett, and so they will last many Years: I cannot in the mean time conceal what a noble Person has assur'd me, that in his goodly *Plantations* of Trees in *Scotland*, where they are continually expos'd to much greater, and more impetuous *Winds* than we are usually acquainted with; he never *stakes* any of his *Trees*; but upon all disasters of this kind, causes only his *Servants* to *redress*, and set them up again as oft as they happen to be overthrown; which he has affirm'd to me, thrives better with them, than with those which he has *staked*; and that at last they strike root so fast, as nothing but the *Axe* is able to prostrate them; and there is good reason for it in my opinion, whilst these concussions of the *Roots*, loosning the *mould*, not only make room for their more easie insinuations, but likewise opens, and prepares it to receive, and impart the better nourishment: It is in another place I suggest that Transplanted *Pines* and *Firrs*, for want of their penetrating *Tap roots*, are hardly consistent against these *Gusts* after they are grown high; especially where they are set close, and in *Tufts*, which betraies them to the greater disadvantage; And therefore such *Trees* do best in *Walks*, and at competent *distances*, where they escape tolerably well: Such therefore as we design for *Woods* of them, should be sow'd, and never remov'd; but of this hereafter. I now proceed to particulars.

CHAP. III.

Of the Oak.

Oak. 1. *Robur*, the *Oak*, I have sometimes consider'd it very seriously, what should move *Pliny* to make a whole *Chapter* of *one* only *Line*, which is less then the *Argument* alone of most of the rest in his huge *Volumn*: but the weightiness of the *Matter* does worthily excuse him, who is not wont to spare his *Words*, or his *Reader*. *Glandiferi maximè generis omnes, quibus honos apud Romanos perpetuus.* "*Mast-bearing-trees were principally those which the* Ro- "mans *held in chiefest repute*, lib.6.cap.3. And in the following where he treats of *Chaplets*, and the dignity of the *Civic Coronet*, it might be compos'd of the *Leaves* or *Branches* of any *Oak*, provided it were a *bearing* Tree, and had *Acorns* upon it. It is for the esteem which these *wise*, and glorious *people* had of this *Tree* above all others, that I will first begin with the *Oak*.

2. The *Oak* is of *four* kinds; two of which are most common with us; (for we shall say little of the *Cerris*, goodly to look on, but for little else) the *Quercus urbana*, which grows more up-right, and being clean, and lighter is fittest for *Timber*: And the *Robur* or *Quercus Sylvestris*, (taking *Robur* for the general name, at least, as *contradistinct* from the rest) which is of an hard, black grain, bearing a smaller *Acorn*, and affecting to spread in *branches*, and to put forth his *Roots* more above ground; and therefore in the planting, to be allow'd a greater distance; *viz.* from *twenty five*, to *forty foot*; (nay sometimes as many *yards*) whereas the other shooting up more erect will be contented with *fifteen*: This kind is farther to be distinguish'd by his fullness of *leaves*, which *tarnish*, and becoming yellow at the *fall*, do commonly clothe it all the *Winter*, the Roots growing very deep and stragling. The Author of *Britannia Baconica* speaks of an *Oak*, in *Lanhadron* Park in *Cornwall*, which bears constantly leaves speckl'd with White; and of another call'd the *Painted-Oak*, which I only mention here, that the variety may be compar'd by some ingenious person thereabouts, as well as the truth of the fatal *præ-admonition* of *Oaks* bearing strange leaves.

3. It is in the mean time the propagation of this large spreading *Oak*, which is especially recommended for the excellency of the *Timber*, and that his *Majesties* Forests were well and plentifully stor'd with them; because they require *room*, and space to amplifie and expand themselves, and would therefore be planted at more remote distances, and free from all encumbrances: And this upon consideration how *slowly* a full-grown *Oak* mounts upwards, and how *speedily* they spread, and dilate themselves to all *quarters*, by dressing

dressing and due culture; so as above *forty years* advance is to be gain'd by this only Industry: And, if thus his *Majesties* Forests, and *Chases* were stor'd; *viz.* with this *spreading Tree* at handsom *Intervals*, by which *Grazing* might be improv'd for the feeding of *Deer* and *Cattel* under them, (for such was the old *Saltus*) benignly visited with the *gleams* of the *Sun*, and adorn'd with the distant *Landskips* appearing through the glades, and frequent Vallies.

——————— betwixt
Whose rows the azure *Skie* is seen immix'd,
With *Hillocks*, *Vales*, and *Fields*, as now wee see
Distinguish'd in a sweet variety;
Such places which wild *Apple-trees* throughout
Adorn, and happy *Shrubs* grow all about.

Cærula distinguens inter plaga currere posset
Per tumulos, & convalles, camposque profusa:
Ut nunc esse vides vario distincta lepore
Omnia, quæ pomis intersita dulcibus, ornant
Arbustisque tenent felicibus obsita circum.
Lucret. *l.* 5.

As the *Poet* describes his *Olive-groves*. Nothing could be more ravishing; for so we might also sprinkle *Fruit-trees* amongst them (of which hereafter) for *Sider*, and many singular uses, and should find such goodly *Plantations* the boast of our *Rangers*, and *Forests* infinitely preferrable to any thing we have yet beheld, *rude*, and *neglected* as they are: I say, when his *Majesty* shall proceed (as he hath *design'd*) to animate this laudable pride into fashon, *Forests* and *Woods* (as well as *Fields* and *Inclosures*) will present us with another face than now they do. And here I cannot but applaud the worthy Industry of old Sir *Harbotle Grimstone*, who (I am told) from a very small *Nursery* of *Acorns*, which he sow'd in the neglected corners of his ground, did draw forth such numbers of *Oaks* of competent growth; as being planted about his *Fields* in even, and uniform rows, about one hundred foot from the *Hedges*; bush'd, and well water'd till they had sufficiently fix'd themselves, did wonderfully improve both the beauty, and the value of his *Demeasnes*. But I proceed.

4. Both these *kinds* would be taken up very young, and *Transplanted* about *October*; some yet for these hardy, and late springing *Trees*, defer it till the *Winter* be well over; but the Earth had need be moyst; and though they will grow tolerably in most grounds; yet do they generally affect the *sound*, *black*, *deep* and *fast* mould, rather warm than over wet and cold, and a little *rising*; for this produces the firmest *Timber*; though my L. *Bacon* prefer that which grows in the *moister* grounds for *Ship timber*, as the most *tough*, and less subject to *rift*: but let us hear *Pliny*. This is a general Rule, *saith he*; "What Trees soever they be which grow tolerably either "on *Hills*, or *Vallies*, arise to greater stature, and spread more amply "in the *lower ground*: But the *Timber* is far better, and of a finer "*grain*, which grows upon the *Mountains*; excepting only *Apple*, "and *Pear trees*. And in the 39 *cap. lib.* 16. The *Timber* of those "Trees which grow in *moist* and *shady* places is not so good as "that which comes from a more expos'd situation, nor is it so close, "substantial and durable; upon which he much prefers the *Timber* growing in *Tuscany*, before that towards the *Venetian* side, and upper part of the *Gulph*: And that *Timber* so growing was in greatest esteem long before *Pliny*, we have the *spear* of *Agamemnon*

——ἔχων ἀνεμοτρεφὲς ἔγχος. Il. λ: from a Tree so expos'd; and *Dydimus* gives the reason. Τὰ γὰρ ἐν ἀνέμῳ (says he) πλέον γυμναζόμενα δένδρα, στερεά, &c. For that being continually *weather-beaten* they become hardier and tougher. The result of all is, that upon occasion of special *Timber*, there is a very great and considerable difference; so as some *Oaken Timber* proves manifestly weaker, more spungie, and sooner decaying than other: The like may be affirm'd of *Ash*, and other kinds; and generally speaking, the *close-grain'd* is the stoutest, and most permanent: But of this let the industrious consult that whole *tenth Chapter* in the *second Book* of *Vitruvius*, where he expressly treats of this Argument, *De Abiete supernate & inferna-te, cum Apennini descriptione:* Where we note concerning *Oak*, that it neither prospers in very *hot*, nor excessive *cold* Countries; and therefore there is little good of it to be found in *Africa*, or indeed, the lower, and most southern parts of *Italy* (for the *Venetians* have excellent *Timber*) nor in *Denmark* or *Norway* comparable to ours; it chiefly affecting a temperate *Climate*, and where they grow naturally in abundance, 'tis a promising marke of it; If I were to make choice of the *place*, or the *Tree*, it should be such as grows in the best *Cow-pasture*, or, up-land *Meadow*, where the mould is rich and sweet (Suffolk affords an admirable instance) and in such *places* you may also *Transplant* large *Trees* with extraordinary success; And therefore it were not amiss to bore, and search the ground where you intend to plant or sow before you fall to work; since Earth too *shallow* or *rockie* is not so proper for this *Timber*; the *Roots* fix not kindly, and though for a time they may seem to *flourish*, yet they will dwindle.

5. But to discourage none, *Oaks* prosper exceedingly even in gravel, and moist *Clays*, which most other Trees abhor; yea, even the coldest *Clay* grounds that will hardly graze: But these *Trees* will frequently make *Stands*, as they encounter variety of footing; and sometimes proceed again vigorously, as they either penetrate beyond, or out-grow their obstructions, and meet better Earth, which is of that consequence, that I dare boldly affirm, more than an *hundred* years advance is clearly gain'd by *Soil* and *Husbandry*. I have yet read, that there grow *Oaks* (some of which have contain'd ten loads apiece) out of the very Walls of *Silcester* in *Hantshire*, which seem to strike root in the very *Stones*; and even in our renouned *Forest* of *Dean* it self, some goodly *Oaks* have been noted to grow upon Ground, which has been as it were a *Rock* of antient *Cinders*, buried there many ages since. It is indeed observ'd, that *Oaks* which grow in rough *stony* grounds, and obstinate *clays*, are long before they come to any considerable stature; for such places, and all sort of *Clay*, is held but a *step-mother* to *Trees*; but in time they afford the most excellent *Timber*, having stood long, and got good *rooting*: The same may we affirm of the lightest *sands*, which produces a smoother-grain'd *Timber*, of all other the most useful for the *Joyner*; but that which grows in *Gravell* is subject to be *Frow* (as they term it) and brittle. What improvement the

stir-

ſtirring of the ground about the roots of *Oaks* is to the *Trees* I have already hinted; and yet in *Copſes* where they ſtand *warm*, and ſo thickn'd with the *under-wood*, as this culture cannot be practis'd, they prove in time to be goodly Trees. I have of late tried the *Graffing* of *Oaks*, but as yet with ſlender ſucceſſe; *Ruellius* indeed affirms it will take the *Pears* and other *Fruit*, and if we may credit the *Poet*,

The ſturdy Oak do's Golden Apples bear.	——*Aurea duræ Mala ferant quercus.*	Ecl. 8.
And under *Elmes* ſwine do the Maſt devour.	*Glandemque ſues fregere ſub Ulmo.*	Geor.

Which I conceive to be the more probable, for that the *Sap* of the *Oak* is of an unkind tincture to moſt Trees. But for this Improvement, I would rather adviſe *Inoculation*, as the ordinary *Elm* upon the *Witch-Haſel*, for thoſe large *leaves* we ſhall anon mention, and which are ſo familiar in *France*.

6. That the Tranſplanting of young *Oaks* gains them *ten* years *Advance* ſome happy perſons have affirmed: from this belief, if in a former *Impreſſion* I have deſir'd to be excuſed, and produc't my Reaſons for it, I ſhall not perſiſt againſt any ſober mans *Experience*; and therefore leave this *Article* to their choice; ſince (as the *Butchers* phraſe is) change of *Paſture* makes fat *Calves*; and ſo *Tranſplantations* of theſe hard wood-trees, when young, may poſſibly, by an happy hand, in fit ſeaſon, and other circumſtances of *Soil*, *Sun*, and *Room* for growth, be an improvement: But as for thoſe who adviſe us to plant *Oaks* of too great a ſtature, they hardly make any conſiderable progreſſe in an *Age*, and therefore I cannot encourage it unleſſe the ground be extraordinarily qualified: Yet if any be deſirous to make *trial* of it let their *Stems* be of the ſmootheſt, and tendereſt *Bark*; for that is ever an indication of *youth*, as well as the paucity of their *Circles*, which in diſbranching, and cutting the head off, at *five* or *ſix* foot height (a thing, by the way, which the *French* uſually ſpare when they *Tranſplant* this *Tree*) may (before you ſtir their *Roots*) ſerve for the more certain *Guide*; and then plant them immediately, with as much Earth as will adhere to them, in the place deſtin'd for their *ſtation*; abating only the *tap-roots*, which is that down right, and ſtubby part of the *Roots* (which all *Trees* rais'd of *Seeds* do univerſally produce) and quickning ſome of the reſt with a ſharp *knife* (but ſparing the *Fibrous*, which are the main *Suckers* and *Mouths* of all *Trees*) ſpread them in the *foſs*, or *pit* which hath been prepar'd to receive them. I ſay in the *foſs*, unleſſe you will rather *trench* the whole *Field*, which is incomparably the beſt; and infinitely to be preferr'd before narrow *pits* and holes (as the manner is) in caſe you plant any number conſiderable, the Earth being hereby made *looſe*, *eaſier* and *penetrable* for the *Roots*, about which you are to caſt that *Mould* which (in opening of the *Trench*) you took from the *Surface*, and purpoſely laid apart; becauſe it is ſweet, mellow, and better *impregnated*: But

in

in this *Work*, be circumspect never to *inter* your *Stem* deeper than you found it standing; for profound *buryings* very frequently destroys a *Tree*; though an *Errour* seldom observed: If therefore the *Roots* be sufficiently cover'd to keep the *Body* steady and erect, it is enough; and the not minding of this trifling *Circumstance* does very much deceive our ordinary *Wood-men*: For most *Roots* covet the *Air* (though that of the *Quercus urbana* least of any, for like the *Æsculus*

How much to heaven her towring head ascends,
So much towards hell her piereing root extends.

——*Quòd quantum vertice ad auras*
Ætherias, tantum radicem Tartara tendit)
Geo. 2.

And the perfection of *that* does almost as much concern the prosperity of a *Tree*, as of *Man* himself; since *Homo* is but *Arbor inversa*; which prompts me to this *curious*, but important *Advertisement*; That the *Position* be likewise sedulously observed.

7. For, the *Southern* parts being more *dilated*, and the *pores* expos'd (as evidently appears in their *Horizontal Sections*) by the constant *Excentricity* of their *Hyperbolical Circles*, being now on the *sudden*, and at such a season converted to the *North*, does *sterve*, and destroy more *Trees* (how carefull soever men have been in ordering the *Roots*, and preparing the *Ground*) than any other *Accident* whatsoever (neglect of *staking*, and *defending* from *Cattle* excepted) the importance whereof cauled the best of *Poets*, and most experienc'd in this *Argument*, giving advice concerning this *Article*, to add.

The Card'nal poynts upon the Bark they signe,
And as before it stood, in the same line
Place to warm south, or the obverted pole;
Such force has custome, in each tender soule.

Quinetiam Cœli regionem in cortice signant,
Ut quo quæque modo steterit, quâ parte calores
Austrinos tulerit, quæ terga obverterit axi;
Restituant: Adeo in teneris consuescere multum est.
Geor. *li.* 1.

Which *Monition*, though *Pliny*, and some *others* think good to neglect, or esteem *indifferent*, I can confirm from frequent losses of my own, and by particular *trials*; having sometimes *Transplanted* great trees at *Mid-somer* with successe (the *Earth* adhearing to the *Roots*) and miscarried in others where this *Circumstance* only was omitted.

To observe therefore the *Coast*, and side of the stock (especially of *Fruit-trees*) is not such a trifle as by some pretended: For if the *Air* be as much the *Mother* or *Nurse*, as *Water* and *Earth*, (as more than probable it is) such blossoming Plants as court the motion of the *Meridian Sun*, do as 'twere evidently point out the advantage they receive by their *position* by the clearnesse, polisture, and comparative splendor of the *South side*: And the frequent *mossinesse* of most *Trees* on the opposite side, does sufficiently note the unkindnesse of that *Aspect*; and which is most evident in the *bark* of *Oaks* white and smooth; The Trees growing more kindly on the *South* side of an *Hill*, than those which are expos'd to the *North*, with an hard, dark, rougher, and more mossie *Integument*, as I can now demonstrate in a prodigious coat of it, investing some *Pyracanths* which I have removed to a *Northern* dripping

ping shade. I have seen (writes a worthy Friend to me on this occasion) whole *Hedge-rows* of *Apples* and *Pears* that quite perished after that shelter was removed: The good *Husbands* expected the contrary; and that the *Fruit* should improve, as freed from the predations of the Hedge; but use and custom made that shelter necessary; and therefore (saith he) a *stock* for a time is the weaker, taken out of a *Thicket*, if it be not well protected from all sudden and fierce invasions either of crude *Air* or *Winds*: Nor let any be deterr'd, if being to remove many *Trees*, he shall esteem it too consumptive of time; for with a *Brush* dipped in any white colour, or *Oaker*, a thousand may be marked as they stand, in a moment; and that once done, the difficulty is over. I have been the larger upon these two *Remarks*, because I find them so *material*, and yet so much neglected.

8. There are other *Rules* concerning the *situation* of *Trees*; the former *Authour* commending the *North-east-wind* both for the flourishing of the *Tree*, and advantage of the *Timber*; but to my observation in our *Climates*, where those sharp *winds* do rather *flanker* than blow fully opposite upon our *Plantations*, they thrive best; and there are as well other Circumstances to be considered, as they respect *Rivers* and *Marshes* obnoxious to unwholsom and poysonous *Fogs*; *Hills*, and *Seas*, which expose them to the weather; and those *sylvifragi venti*, our cruel, and tedious *Western-winds*; all which I leave to Observation, because these *Accidents* do so universally govern, that it is not easie to determine farther than that the *Timber* is commonly better qualified which hath endur'd the *colder* Aspects without these prejudices: And hence it is, that *Seneca* observes *Wood* most expos'd to the *Winds* to be the most *strong* and *solid*, and that therefore *Chiron* made *Achilles*'s Spear of a *Mountain-tree*; and of *those* the *best* which grow thin, not much shelter'd from the *North*. Again, *Theophrastus* seems to have special regard to *places*; exemplifying in many of *Greece*, which exceeded others for good *Timber*, as doubtlesse do our *Oaks* in the *Forest* of *Dean* all others of *England*: and much certainly there may reasonably be attributed to these advantages for the growth of *Timber*, and of almost all other *Trees*, as we daily see by their general improsperity where the ground is a *hot gravel*, and a *loose earth*: An *Oak* or *Elme* in such a place shall not in an *hundred years* overtake one of *fifty* planted in its *proper* Soil; though next to this and (haply) before it, I prefer the good *Air*: But thus have they such vast *Junipers* in *Spain*; and the *Ashes* in some parts of the *Levant* (as of old neer *Troy*) so excellent, as it was after mistaken for *Cedar*, so great was the difference; as now the *Cantabrian* or *Spanish* exceeds any we have else where in *Europe*. And we shall sometimes in our own *Country* see *Woods* within a little of each other, and to all appearance, growing on the same *Soil*, that *Oaks* of twenty years growth, or forty, will in the same bulke of *Timber*, contain their double in *Heart* and *Timber*; and that in *one* the *Heart* will not be so big as a mans *Arm*, when the

trunke

trunke exceeds a mans *body:* This ought therefore to be weighed in the first plantation of *Copses*, and a good *Eye* may discern it in the first *Shoot*; the difference proceeding doubtlesse from the variety of the *Seed*, and therefore great care should be had of its goodness, and that it be gather'd from the best sort of *Trees*, as was formerly hinted, *c.* 1.

9. *Veterem Arborem Transplantare* was say'd of a difficult enterprise; Yet before we take leave of this *Paragraph*, concerning the *Transplanting* of great *Trees*, and to shew what is possible to be *effected* in this kind, with cost, and industry; *Count Maurice* (the late *Governour* of *Brasil* for the *Hollanders*) planted a *Grove* neer his delicious *Paradise* of *Friburge*, containing six hundred *Coco-trees* of *eighty* years growth, and *fifty* foot high to the neerest bough: these he wafted upon *Floats*, and *Engines*, four long miles, and planted them so luckily, that they bare abundantly the very first year; as *Gasper Barlæus* hath related in his elegant *Description* of that *Princes* expedition: Nor hath this only succeeded in the *Indies* alone; *Monsieur de Fiat* (one of the *Marshals* of *France*) hath with huge *Oaks* done the like at *de Fiat:* shall I yet bring you neerer home? A great person in *Devon*, planted *Oaks* as big as twelve *Oxen* could draw, to supply some defect in an *Avenue* to one of his houses; as the Right Honourable the Lord *Fits-Harding*, late *Treasurer* of his *Majesties houshold*, assur'd me; who had himself likewise practis'd the *Removing* of great *Oaks* by a particular address extreamly ingenious, and worthy the communication.

10. Chuse a *Tree* as big as your *thigh*, remove the earth from about him; cut through all the *collateral* Roots, till with a competent strength you can enforce him down upon one side, so as to come with your *Ax* at the *Tap-root*; cut that off, redress your *Tree*, and so let it stand cover'd about with the *Mould* you loosen'd from it, till the next year, or longer if you think good; then take it up at a fit season; it will likely have drawn new tender *Roots* apt to take, and sufficient for the *Tree*, wheresoever you shall *Transplant* him: *Pliny* notes it as a common thing, to re-establish huge *Trees* which have been blown down, part of their Roots torn up, and the body prostrate; and, in particular, of a *Firr*, that when it was to be *Transplanted* had a *tap-root* which went no less than *eight* cubits *perpendicular*; and to these I could superadd, but I proceed. To facilitate the *Removal* of such monstrous *Trees*, for the *Adornment* of some particular *place*, or the rarity of the *Plant*, there is this *expedient.* A little before the hardest *Frosts* surprize you, make a square *Trench* about your *Tree*, at such distance from the *Stem* as you judge sufficient for the *Root*; dig this of competent depth, so as almost quite to undermine it; by placing *blocks*, and *quarters* of wood, to sustain the *Earth*; this done, cast in as much *Water* as may fill the *Trench*, or at least sufficiently wet it, unless the ground were very moist before. Thus let it stand, till some very hard *Frost* do bind it firmly to the *Roots*, and then convey it to the *pit* prepar'd for its new station; but in case the mould about it be so *ponderous* as not

to

to be remov'd by an ordinary force; you may then raiſe it with a *Crane* or *Pully* hanging between a *Triangle*, which is made of three ſtrong and tall *Limbs* united at the top, where a *Pully* is faſtned, as the *Cables* are to be under the quarters which bear the earth about the *Roots*: For by this means you may weigh up, and place the whole weighty *Clod* upon a *Trundle* to be convey'd, and *Replanted* where you pleaſe, being let down prependicularly into the place by the help of the foreſaid *Engine*. And by this *addreſſe* you may *Tranſplant* Trees of a wonderfull *ſtature*, without the leaſt diſorder; and many times without *topping*, or diminution of the *head*, which is of great importance where this is practis'd to ſupply a *Defect*, or remove a *Curioſity*.

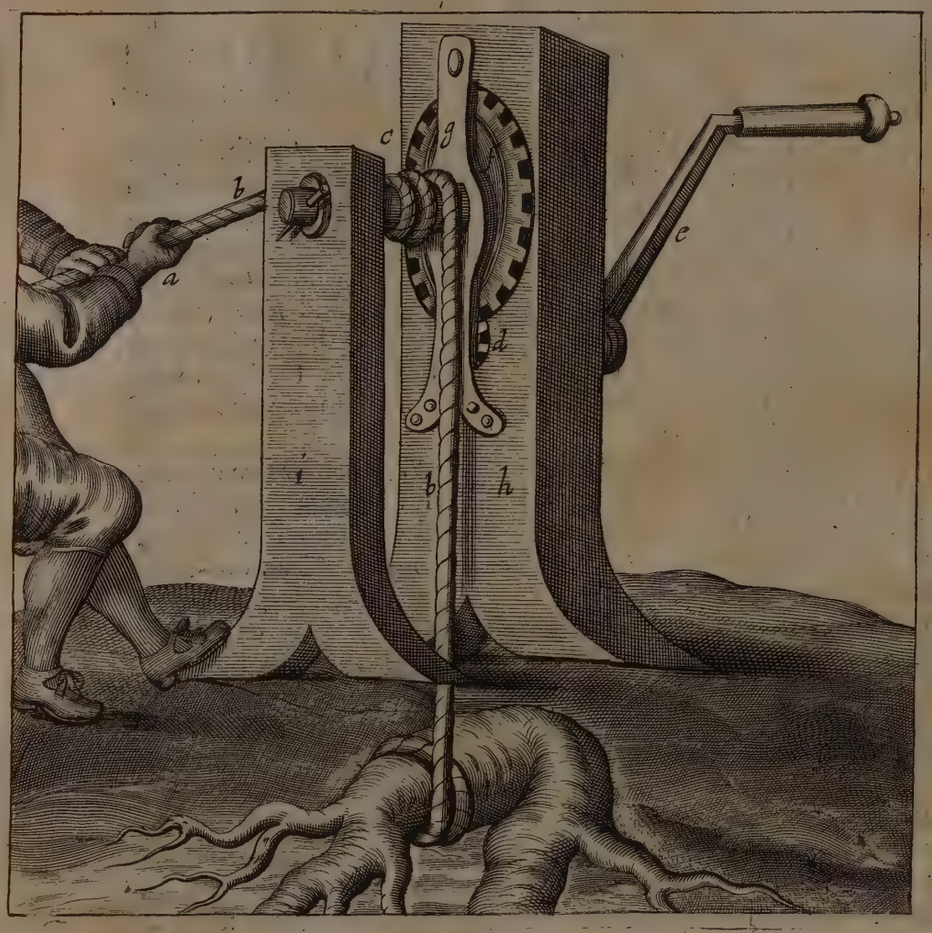
11. Some adviſe, that in planting of *Oaks*, *&c.* *four*, or *five*, be ſuffer'd to ſtand very neer to one another, and then to leave the moſt *proſperous*, when they find the reſt to diſturb his growth; but I conceive it were better to plant them at ſuch *diſtances*, as they may leaſt incommode one another: For *Timber-trees*, I would have none neerer then *forty* foot where they ſtand *cloſeſt*; eſpecially of the ſpreading kind.

12. Laſtly, Trees of ordinary ſtature *Tranſplanted* (being firſt well *water'd*) muſt be ſufficiently ſtaked, and *Buſh'd* about with *thorns*, or with ſome thing better, to protect them from the concuſſions of the *Winds*, and from the caſual *rubbing*, and poyſonous brutting of *Cattle* and *Sheep*, the *oylineſſe* of whoſe *Wooll* is alſo very noxious to them; till being well *grown*, and *fixed* (which by *ſeven* years will be to ſome competent degree) they ſhall be able to withſtand all accidental *invaſions*, but the *Axe*; for I am now come to their *Pruning* and *Cutting*, in which work the *Seaſons* are of main importance.

13. Therefore, if you would propagate *Trees* for *Timber*, cut not off their *heads* at all, nor be too buſie with lopping: but if you deſire *Shade*, and *Fuel*, or bearing of *Maſt* alone, lop off their tops, *ſear*, and unthriving *Branches* only; If you intend an out-right *felling*, expect till *November*: for this *præmature* cutting down of *Trees* before the *Sap* is perfectly at *reſt* will be to your exceeding prejudice, by reaſon of the *Worm*, which will certainly breed in the *Timber* which is felled before that period: But in caſe you cut only for the *Chimney*, you need not be ſo punctual as to the time; yet for the benefit of what you let *ſtand* obſerve the *Moons* increaſe. The *Reaſon* of theſe *differences*, is; becauſe *this* is the beſt reaſon for the *growth* of the *Tree* which you do *not* fell, the other for the *durableneſſe* of the *Timber* which you *do*: Now that which is to be *burnt* is not ſo material for *laſting*, as the *growth* of the Tree is conſiderable for the *Timber*: But of theſe *particulars* more at large in *Cap.* 30.

14. The very *ſtumps* of *Oak*, eſpecially that part which is dry, and above ground being well *grubb'd*, is many times worth the pains and charge, for ſundry rare, and *hard* works; and where *Timber* is dear. I could name ſome who abandoning this to *work-*

men for their *pains* only, when they perceiv'd the great advantage, repented of their *Bargain*, and undertaking it themſelves, were gainers above half: I wiſh only for the expedition of this *knotty* work, ſome effectual *Engine* were deviſed; ſuch as I have been told a *worthy* Perſon of this *Nation* made uſe of, by which he was able with *one man* to perform *more* than with *twelve Oxen*; and ſurely, there might be much done by faſtning of *Iron hooks* and *fangs* about one Root to extract another; the *koock* chayn'd to ſome portable *Screw* or *Winch:* I ſay ſuch an invention might effect wonders not only for the extirpation of *Roots*, but the proſtrating of huge *Trees*: That ſmall *Engine*, which by ſome is cal'd the *German-devil*, reform'd, after this manner, and duely applied, might be very expedient for this purpoſe, and therefore we have exhibited the following figure and ſubmit it to improvement.



A *The* hand *that keeps the* Rope, b *close upon the* Cylinder c *which is moved by a* Pinnion *of three or four teeth:* d *which moves a larger* Iron Wheel f. e *the* Handle *put upon the* Spindle *of the* Pinnion, *to turne it withall.*

The whole Frame *is let into a bigger piece of Wood,* viz. h *being about four foot in length, and one in breadth, and the other end of the* Roller *or* Cylinder, *is sustein'd by a lesser* block *of Wood* (i) g *the* Plate *which holds the* Wheel *and* Pinnion *in the larger* block. *Note,*

That the Cylinder *may be made of good tough* Iron, *about four inches in* diameter, *and fourteen or sixteen inches in* length, *and the tooth'd* Wheel f *of the like stuff, and of a thickness proportionable.*

But this is to be practis'd only where you design a final *extirpation*; for some have drawn *suckers* even from an old *stub root*; but they certainly perish by the *Moss* which invades them, and are very subject to grow rotten. *Pliny* speaks of one *Root* which took up an intire *Acre* of Ground, and *Theophrastus* describes the *Lycean Platanus* to have spread an hundred foot; if so, the *Argument* may hold good for their growth after the *Tree* is come to its period. They made *Cups* of the *Roots* of *Oak* heretofore, and such a curiosity *Athenæus* tells us was carv'd by *Thericleus* himself; and there is a way so to *tinge Oak* after long burying and soaking in *Water*, which gives it a wonderfull *politure*, as that it has frequently been taken for a course *Ebony*.

15. There is not in *nature* a thing more obnoxious to *deceit*, then the buying of Trees *standing*, upon the reputation of their *Appearance* to the *eye*, unless the *Chapman* be extraordinarily judicious; so various are their *hidden*, and conceal'd *Infirmities*, till they be *fell'd*, and *sawn* out: so as if to any thing *applicable*, certainly there is nothing which does more perfectly confirm it then the most flourishing *out-side* of Trees, *Fonti nulla fides.* A *Timber-tree* is a *Merchant Adventurer*, you shall never know what he is *worth*, till he be *dead*.

16. *Oaks* are in some places (where the soil is *specially* qualified) ready to be cut for *Cops* in *fourteen* years and sooner; I compute from the first *semination*; though it be told as an instance of high encouragement (and as indeed it merits) that a *Lady* in *Northamptonshire* sowed *Acorns*, and liv'd to cut the *Trees* produc'd from them, *twice* in *two* and *twenty years*; and both as well grown as most are in *sixteen* or *eighteen*. This yet is certain, that *Acorns* set in *Hedg-rows* have in thirty years born a *stem* of a foot *diametre*. Generally, *Copps-wood* should be cut *close*, and at such *Intervals* as the growth requires; which being seldom constant, depends much on the *places*, and the *kinds*, the *mould* and the *air*, and for which there are extant particular *Statutes* to direct us, of all which more at large hereafter. Oak for *Tan-bark* may be fell'd from *April* to the last of *June*, by a *Statute in the* 1 *Jacobi*.

17. To enumerate now the incomparable *Uses* of this *Wood*, were needlesse: But so precious was the esteem of it, that of *Old* there was an expres *Law* amongst the *Twelve Tables* concerning the very gathering of the *Acorns*, though they should be found fallen into another mans Ground: The *Land* and the *Sea* do sufficiently speak for the improvement of this excellent material; *Houses*, and *Ships*, *Cities*, and *Navies* are built with it; and there is a *kind* of it so *tough*, and extreamly compact, that our sharpest *Tools* will hardly enter it, and scarcely the very *Fire* it self, in which it consumes but slowly, as seeming to partake of a *ferruginous*, and *mettallin* shining nature, proper for sundry robust Uses; It is doubtlesse of all *Timber* hitherto known, the most universally usefull and strong; for though some *Trees* be harder, as *Box*, *Cornus*, *Ebony*, and divers of the *Indian Woods*; yet we find them more fragil, and not so well qualified to support great incumbencies and weights, nor is there any Timber more *lasting* which way soever us'd: There has (we know) been no little stir amongst Learned men of what material the *Cross* was made, on which our blessed *Saviour* suffer'd: The contentions about it are very great: but, besides *Lipsius*, *Angelus Rocca*, *Alphonsus Ciaconus*, and divers others, writing on this subject, and upon accurate examination of the many fragments pretended to be parcells of it; 'tis generally concluded to have been the *Oak*, and I do verily believe it; since those who have described those *Countries*, assure us there is no Tree more frequent, which with relation to severall celebrations and *Mysteries* under *Oaks* in the *Old Testament*, has been the subject of many fine discourses. That which is *twin'd*, and a little *wreathed* (easily to be discern'd by the *texture* of the *Bark*) is best to support *Burthens*, for *Posts*, *Columns*, *Summers*, *&c.* for all which our *English Oak* is infinitely preferrable to the *French*, which is nothing so *usefull*, nor comparably so *strong*; insomuch as I have frequently admir'd at the sudden failing of most goodly *Timber* to the *Eye*, which being imploy'd to these *Uses* does many times most dangerously flie in sunder, as wanting that native *spring*, and *tougkness*, which our *English* Oak is indu'd withall. And here we forget not the stresse which Sir *H. Wotton* and other *Architects* put even in the very *position* of their growth, their native streightnesse and lostinesse, for *Columns*, *Supporters*, *Cross-beams*, &c. and 'tis found that the rough grain'd body of a *stubbed Oak*, is the fittest *Timber* for the *Case* of a *Sider-Mill*, and such like *Engines*, as best enduring the unquietnesse of a ponderous Rolling-stone. For *Shingles*, *Pales*, *Lathes*, *Coopers* ware, *Clap-board* for *Wainscot*, and some pannells, are curiously vein'd, of much esteem in former times, till the finer grain'd *Norway* Timber came amongst us, which is likewise of a whiter colour: It is observ'd that *Oak* will not easily *glue* to other *Wood*; no not very well with its own kind; and some sorts will never cohere tolerably, as the *Box* and *Horn-beam*, though both hard woods; so nor *Service* with *Cornell*, &c. Oak is excellent for *Wheel-spokes*, *Pinns* and *Peggs* for *Tyling*, &c. Mr. *Blith* makes

Sparrs,

Sparrs and ſmall building-*Timber* of *Oaks* of eleven years growth, which is a prodigious advance, *&c.* the ſmalleſt and ſtreighteſt is beſt; diſcover'd by the upright *tenor* of the *Bark*, as being the moſt proper for *cleaving:* The *knottieſt* for *Water-works*, *Piles* and the like; becauſe 'twill drive beſt, and laſt longeſt, the crooked, yet firm, for *knee-timber* in *Shipping*, *Mill-wheels*, &c. Were planting of theſe *Woods* more in uſe, we ſhould baniſh our *hoops* of *Haſel*, *&c.* for thoſe of good coppet *Oak*, which being made of the younger *ſhoots*, are exceeding tough and ſtrong: *One* of them being of *Ground-Oak* will out-laſt *ſix* of the beſt *Aſh*; but this our *Coopers* love not to hear of, who work by the *great* for *Sale*, and for others. The ſmaller trunchions, and *ſpray*, make *Billet*, *Bavine* and *Coals*; and the *Bark* is of price with the *Tanner* and *Dyer*, to whom the very *Saw-duſt* is of uſe, as are the *Aſhes* and *Lee* to cure the *roapiſhneſs* of *Wine:* And 'tis probable the *Cups* of our *Acorns* would *tan Leather* as well as the *Bark*. The *Ground-Oak* while young is us'd for *Poles*, *Cudgels* and *walking-ſtaffs*, much come into mode of late, but to the *waſt* of many a hopefull *Plant* which might have prov'd good *Timber*; and I the rather declaime againſt the Cuſtom, becauſe I ſuſpect they are ſuch as are for the moſt part cut and *ſtolen* by *idle* Perſons, and brought up to *London* in great bundles, without the knowledg or leave of the *Owners*, who would never have glean'd their *Copſes* for ſuch trifling uſes: Here I am again to give a general notice of the peculiar excellency of the *Roots* of moſt *Trees*, for fair, beautifull, *chamleted*, and laſting *Timber*, applicable to many purpoſes; ſuch as formerly made *Hafts* for *Daggers*, *Hangers*, *Knives*, *Handles* for *ſtaves*, *Tobacco-Boxes*, and elegant *Joyners work*, and even for ſome *Mathematical Inſtruments* of the larger ſize, to be had either in, or neer the *Roots* of many *Trees*; however 'tis a kindneſſe to premoniſh *Stewards* and *Surveyors*, that they do not negligently waſt thoſe *materials:* Nor may we here omit to mention the *Galls*, *Miſſletoe*, *Polypod*, *Agaric* (us'd in *Antidots*) *Vuæ*, *Fungus*'s to make *Tinder*, and many other uſefull *Excreſcencies*, to the number of above *twenty*, which doubtleſſe diſcovers the variety of *tranſudations*, *percolations* and *contextures* of this admirable *Tree*. *Pliny* affirms that the *Galls* break out altogether in one *night* about the beginning of *June*, and arrive to their full growth in one *day*; this I recommend to the experience of ſome extraordinary vigilant *Wood-man*. *Galls* are of ſeveral kinds, but grow upon a different *ſpecies* of *Robur* from any of ours, which never arive to any maturity; the *white* and *imperforated* are the beſt. What benefit the *Maſt* does univerſally yield for the fatting of *Hogs* and *Deer* I ſhall ſhew upon another occaſion, before the concluſion of this Diſcourſe. A Peck of *Acorns* a day, with a little *Bran*, will make an *Hog* ('tis ſaid) increaſe a pound-weight *per diem* for two moneths together. They give them alſo to *Oxen* mingled with *Bran*, chop'd or broken; otherwiſe they are apt to ſprout and grow in their bellies. Others ſay, they ſhould firſt be macerated in *water*, to extract their malignity; *cattel* many

times

times perishing without this preparation. *Cato* advises the *Husband-man* to reserve 240 *bushels of Acorns* for his *Oxen*, mingled with a like quantity of *Beans* and *Lupines*, and to drench them well. But in truth they are more proper for *Swine*, and being so made small will fatten *Pigeons*, *Peacocks*, *Turkies*, *Pheasants*, and *Poultry*: nay 'tis reported, that some *Fishes* feed on them, especially the *Tunny*, in such places of the *coast* where *trees* hang over Arms of the *Sea*. *Acorns* were heretofore the *food* of *Men*, nay of *Jupiter* himself, (as well as other *productions* of the Earth) till their luxurious *palats* were *debauched*: and even in the *Romans* time, the custom was in *Spain* to make a *second service* of *Acorns* and *Mast*, (as the *French* now do of *Marrons* and *Chesnuts*) which they likewise used to roast under the *embers*.

Fed with the Oaken Mast
The aged Trees themselves in years surpass'd.

Et quernâ glande repasta
Æquâsse annosas vivendo corpora Quercus.

And men had indeed *hearts of Oak*; I mean, not so *hard*, but *health*, and *strength*, and liv'd naturally, and with things easily parable and plain.

Blest *Age* o'th' *World*, just *Nymph*, when *Man* did
Under thy shade, whence his provision fell; (dwell
Sallads the *meal*: Wildings were the *Dissert*,
No Tree yet learn'd by ill-exampled *Art*
With *insitivous fruit* to symbolize,
As in an *Emblem*, our *Adulteries*.

Fælix illa ætas mundi justissima Nympha,
Cùm dabat umbra domum vivam tua, cùm domus ipsa
Deciduâ Dominos pascebat fruge quietos,
Soláque præbebant Sylvestria poma secundas
Gramineis epulas mensis; nondum arte magistrâ
Arbor Adulteriis præluserat insita nostris, &c.
Coulei Pl. L. 6.

as the sweet *Poet* bespeaks the *Dryad*; But 'tis in another place where I shew you what this *Acorn* was; and even now I am told, that those small young *Acorns* which we find in the *Stock-doves* Craws, are a delicious fare, as well as those incomparable *Salads* of young herbs taken out of the *maws* of *Partridges* at a certain season of the *year*, which gives them a preparation far exceeding all the art of *Cookery*. *Oaks* bear also a *knur*, full of a *cottony* matter, of which they anciently made *Wick* for their *Lamps* and *Candles*; and among the *Selectiora Remedia* of *Jo. Prævotius* there is mention of an Oil *è querna glande* Chymically *extracted*, which he affirms to be of the longest continuance, and least consumptive of any other whatsoever, for such lights, *ita ut uncia singulis mensibus vix absumatur continuo igne*. The *leaves* of *Oaks* abundantly congested on *Snow*, preserves it as well for *wine*, as a deep *pit*, or the most artificial *Refrigeratory*. *Varro* affirms, they made *Salt* of *Oak* ashes, with which they sometimes seasoned *meat*, but more frequently made use of it to sprinkle among and fertilize their *seed-corn*: which minds me of a certain *Oak* found buried somewhere in *Transilvania*, near the *Salt-pits*, that was intirely converted into an hard *salt*, when they came to examine it by cutting. This *experiment* (if true) may possibly encourage some other attempts for the multiplying of *Salt*. Of the *Galls* is made the ground and *basis* of *Inks* and several *Dies*, especially sadder colours, and are a great revenue to those who have quantities of them. The very *Mosse* of the

the *Oak*, *viz.* that which is *white*, composes the choicest *Cypresse-powder*, which is esteemed good for the head: but *Impostors* familiarly vend other *Mosses* under that name, as they do the *Fungi* for the true *Agaric*, to the great scandal of *Physick*. Young red *Oaken* leaves decocted in *wine*, make an excellent *gargle* for a sore *mouth*: and almost every part of this *Tree* is soveraign against *Fluxes* in general. The *dew* that impearls the leaves in *May*, insolated, meteorizes and sends up a *liquor*, which is of admirable effect in *Ruptures*: And a *water* distill'd from the *Acorns* are good against the *Phthisick*, *Stitch* in the side, and heals inward *Ulcers*, breaks the *Stone*, and refrigerates *Inflammations*, being applied with Linnen dip'd therein: nay, the *Acorns* themselves eaten fasting kill the *worms*, provoke *urine*, and (some affirm) break even the *Stone* it self. The *Coals* of *Oak* beaten and mingled with *honey*, cures the *Carbuncle*; to say nothing of the *Viscous's*, *Polypods*, and other *Excrescences*, of which innumerable *Remedies* are composed, noble *Antidotes*, *Syrups*, &c. Nay, 'tis reported, that the very *shade* of this *tree* is so wholesom, that the *sleeping* or lying under it becomes a present *remedy* to *Paralyticks*, and recovers those whom the mistaken malign influence of the *Walnut-tree* has smitten. To conclude, and upon serious meditation of the various uses of *this* and other *trees*, we cannot but take notice of the admirable *Mechanism* of *Vegetables* in general; as in particular in this *species*; that by the diversity of *Percolations* and *Strainers*, and by mixtures as it were of divine *Chymistry*, various *concoctions*, &c. the *sap* should be so green on the indented *leaves*, so lustily *esculent* for our hardier and rustick Constitutions in the *fruit*; so flat and palid in the *Atramental Galls*; and haply so prognostick in the *Apple*; so *Suberous* in the *Bark* (for even the *Cork-tree* is but a courser *Oak*) so *Oozie* in the *Tanners pit*; and in that subduction so wonderfully *specifick* in corroborating the *Entrails*, and *Bladder*, *Reins*, *Loins*, *Back*, *&c.* which are all but the gifts and qualities, with many more, that these robust *sons of the Earth* afford us; and that in other *specific's*, even the most despicable and vulgar *Elder* imparts to us in its *rind*, *leaves*, *buds*, *blossoms*, *berries*, *ears*, *pith*, *bark*, *&c.* Which hint may also carry our remarks upon all the varieties of *Shape*, *Leaf*, *Seed*, *Fruit*, *Timber*, *Grain*, *Colour*, and all those other *forms* that *Philosophers* have enumerated; but which were here too injurious for us to repeat. Let us end with the Poet:

When Ships for bloudy combat we prepare,
Oak affords plank, and arms our Men of War;
Maintains our fires, makes plows to till the ground,
For use no Timber like the Oak is found.

Si quando armandæ naves, & bella parandæ,
Det quercus nautis tabulata, det arma furori
Bellantum; det ligna foco, det aratra colono,
Aut aliis alios porro sumatur in usus.

Rapinus.

CHAP.

CHAP. IV.

Of the Elm.

Elm.

1. ULmus the *Elm*, There are *four*, or *five* sorts, and from the difference of the *Soil* and *Air* divers *spurious*: Two of these kinds are most worthy our culture, the vulgar, *viz.* the *Mountain Elm*, which is taken to be the *Oriptelea* of *Theophrastus*; being of a lesse jagged and smaller leaf; and the *Vernacula* or *French Elm*, whose leaves are thicker, and more florid, *glabrous* and smooth, delighting in the lower and moister grounds, where they will sometimes rise to above an hundred foot in height; and a prodigious growth, in lesse than an *Age*; my self having seen one planted by the hand of a *Countesse* yet living, which is neer *twelve* foot in *compass*, and of an *height* proportionable; notwithstanding the numerous progeny which grows under the shade of it, some whereof are at least a foot in *Diameter*, that for want of being seasonably *transplanted*, must needs have hindered the procerity of their ample and indulgent *Mother*: I am persuaded some of these are *Viviradices & Traduces* produc't of the falling *seeds*.

2. For though both these sorts are rais'd of *Appendices* or *Suckers* (as anon we shall describe) yet this latter comes well from the *Samera* or *Seeds*, and therefore I suppose it to be the antient *Attinea*, for such an *Elm* they acknowledge to be rais'd of *Seeds*, which being *ripe* about the beginning of *March* (though frequently not till the following Month) will produce them; as we see abundantly in the *Gardens* of the *Thuylleries*, and that of *Luxembourg*, at *Paris*, where they usually sow themselves and come up very thick; and so do they in many places of our Countrey, though so seldom taken notice of, as that it is esteemed a *fable*, by the lesse observant and ignorant vulgar; let it be tryed in *season*, by turning and raking some fine earth, often refreshed under some amply spreading *Tree*, or to raise them of their *Seeds* (being well dryed a day or two before) sprinkled in *Beds* prepar'd of good earth, and siefting some of the finest mould thinly over them, and watering them when need requires. Being risen an inch above ground (refreshed and preserved from the scraping of *Birds* and *Poultry*) comfort the tender *seedlings* by a second siefting of more fine earth, to establish them; thus keep them clean *weeded* for the first *two years*; or till being of fitting stature to *remove*, you may *thin*, and *Transplant* them in the same manner as you were directed for young *Oaks*; only they shall not need above one cutting, where

where they grow lesse regular and hopeful. But because this is an *Experiment* of some *curiosity*, obnoxious to many casualties, and that the producing them from the *Mother-roots* of greater Trees is very facile and expeditious (besides the numbers which are to be found in the *Hedge-rows*, and *Woods*, of all plantable sizes) I rather advise our *Forester* to furnish himself from those places.

3. The *Suckers* which I speak of are produced in abundance from the *Roots*, whence, being *dextrously* separated, after the Earth has been well loosned, and planted about the end of *October*, they will grow very well: Nay, the *stubs* onely, which are left in the ground after a felling (being fenced in as far as the *Roots* extend) will furnish you with plenty, which may be *transplanted* from the *first year* or *two*, successively; by slipping them from the *Roots*, which will continually supply you for many years after that the body of the Mother-tree has been cut down: And from hence probably is sprung that (I fear) mistake of *Salmasius* and others, where they write of the growing of their *Chips* (I suppose having some of the Bark on) scattered in hewing of their *Timber*; the *Errour* proceeding from this, that after an *Elm-tree* has been *fell'd*, the numerous *Suckers* which shoot from the remainders of the *latent* Roots, seem to be produced from this dispersion of the *Chips*: Let this yet be more accurately examined; for I pronounce nothing *Magisterially*, since it is so confidently reported.

4. I have known *Stakes* sharpned at the ends for other purposes, take root familiarly in moist grounds, and become *Trees*; and divers have essay'd with extraordinary success the trunchions of the Boughs and Arms of *Elms* cut to the scantling of a mans arm, about an *ell* in length. These must be chopp'd on each side opposite, and laid into *trenches* about half a foot deep, covered about two or three fingers deep with good mould. The season for this work is towards the *exit* of *January*, or early in *February* if the Frosts impede not, and after the first year, you may cut or saw the *trunchions* off in as many places as you find cause, and as the shoots and rooted Sprouts will direct you for *transplantation*. Another expedient for the propagation of *Elms* is this; let *trenches* be sunk at a good distance (*viz.* twenty or thirty *yards*) from such Trees as stand in *Hedge-rows*, and in such order as you desire your *Elms* should grow; where these gutters are, many young *Elms* will spring from the small roots of the adjoyning Trees, divide (after one year) the *shoots* from their Mother-roots, which you may dextrously do with a sharp *spade*: These *transplanted*, will prove good Trees without any damage to their Progenitors. Or do thus, Lop a young *Elm*, the *lop* being about three years growth, do it in the latter end of *March*, when the *Sap* begins to creep up into the Boughs, and the *Buds* ready to break out; cut the Boughs into lengths of four foot slanting, leaving the *knot* where the *bud* seems to put forth in the middle:

Interr these short pieces in *trenches* of three or four inches deep, and in good *mould* well trodden, and they will infallibly produce you a Crop, for even the smallest *Suckers* of *Elms* will grow being set when the *Sap* is newly stirring in them: There is yet a fourth way no lesse expeditious, and frequently confirmed with excellent successe: Bare some of the Master-roots of a vigorous *Tree* within a foot of the *Trunk*, or thereabouts, and with your *Ax* make several Chops, putting a small stone into every *cleft*, to hinder their closure, and give accesse to the *wet*; then cover them with three, or four *inch* thick of Earth; and thus they will send forth Suckers in abundance (I assure you one single *Elm* thus well ordered, is a fair *Nursery*) which after two or three years, you may separate, and plant in the *Ulmarium*, or place designed for them; and which if it be in Plumps (as they call them) within ten or twelve foot of each other, or in *Hedge-rows*, it will be the better: For the *Elm* is a Tree of *Consort*, *Sociable*, and so affecting to grow in Company, that the very best which I have ever seen do almost touch one another: This also protects them from the *Winds*, and causes them to shoot of an extraordinary *height*; so as in little more than *forty years*, they even arrive to a load of *Timber*; provided they be sedulously and carefully cultivated, and the *Soil* propitious. For an *Elm* does not thrive so well in the *Forest*, as where it may enjoy scope for the Roots to dilate and spread at the sides, as in *Hedge-rows* and *Avenues*, where they have the *Air* likewise free.

5. There is besides these sorts we have named, *one* of a more *Scabrous* harsh leaf, but very large, which becomes an huge *Tree*, and is distinguished by the name of the *Witch-hazel* in our Statute Books, as serving formerly to make *long Bowes* of; but the *Timber* is not so good as the *first* more vulgar; but the *Bark* at time of year, will serve to make a course *bast-rope* with.

6. Of all the Trees which grow in our *Woods*, there is none which does better suffer the Transplantation then the *Elm*; for you may *remove a tree of twenty years growth* with undoubted successe: It is an Experiment I have made in a Tree almost as big more as my waste; but then you must totally *disbranch* him, leaving onely the *Summit* intire; and being careful to take him up with as much *Earth* as you can, refresh him with abundance of *water*. This is an excellent, and expeditious way for great Persons to plant the *Accesses* of their Houses with; for being disposed at sixteen, or eighteen foot *interval*, they will in a few years bear goodly heads, and thrive to admiration. Some that are very cautious, *emplaster* the wounded head of such over-grown *Elms* with a mixture of *clay* and *horse-dung*, bound about them with a wisp of *Hay* or fine *Moss*, and I do not reprove it, provided they take care to temper it well, so as the *Vermine* nestle not in it. But for more ordinary plantations, younger Trees, which have their *bark* smooth and tender, about the scantling of your leg, and their heads trimm'd at five or six foot height, are to be preferr'd before

fore all other. *Cato* would have none of these sorts of *Trees* to be removed till they are five or six fingers in *diameter*; others think they cannot take them too young; but experience (the best *Mistriss*) tells us, that you can hardly plant an *Elm* too big. There are who pare away the *Root* within two fingers of the *stem*, and quite cut off the *Head*; but I cannot commend this extream severity, no more than I do the strewing of *Oats* in the pit; which *fermenting* with the moisture, and frequent *waterings*, is believed much to *accelerate* the putting forth of the *Roots*; not considering, that for want of *air* they corrupt, and grow musty, which more frequently suffocates the *Roots*, and endangers the whole *Tree*.

7. I have affirmed how patient this *Tree* is of *Transplantation*; not onely for that I observe so few of them to grow wild in *England*, and where it may not be suspected; but they, or their predecessors have been planted by some industrious hand; but for that those incomparable *Walkes* and *Vistas* of them both at *Aranivez*, *Casa del Campo*, *Madrid*, the *Escurial*, and other places of delight belonging to the *King* and *Grandees* of *Spain*, are planted with such as they report *Philip* the second caused to be brought out of *England*; before which (as that most Honourable Person the Earl of *Sandwich* now his Majesties Ambassador Extraordinary, at that *Court* writes to me) it does not appear there were any of those *Trees* in all *Spain*. In that Princely Seat it is, that double rowes of them are planted in many places for a *league* together in length, and some of them *fourty yards* high, which are kept stript up to the very top branch, which must needs render a most glorious, and agreeable effect; no *Tree* whatsoever, becoming long *Walks* and *Avenues*, comparably to this Majestick plant: But hear it as sweetly advised as described;

An *Elm* for graceful verdure, bushy bough,
A lofty top, and a firm rind allow.
Plant *Elm* in borders, on the Grasse plots list,
Branches of *Elm* into thick *Arbours* twist;
A Gallery of *Elm* draw to the end
That Eyes can reach, or a breath'd race extend.

Vt viror est ulmo lætus, ramique comantes,
Arduus, alta petens & lævi cortice truncus.
Ulmum adhibe ordinibus, quoties fundenda per hortum,
Sunt serie spatia ingenti, texendaque totis,
Æstivos contra soles umbracula campis:
Una alias inter texendis aptior ulmus
Marginibus spatiorum, exornandoque vireto.
Seque adeo series, plano super æquore, tendat
Ulmorum tractu longo; quantum ipsa tuentum
Lumina, vel gressus valeant lustrare sequentum.

Rapinus.

8. The *Elm* delights in a *sound*, *sweet*, and *fertile* Land, something more inclined to moisture, and where good pasture is produced; though it will also prosper in the gravelly, provided there be a competent depth of *mould*, and be refreshed with Springs; in defect of which, being planted on the very surface of the ground (the *swarth* par'd first away, and the earth stirred a foot deep or more) they will undoubtedly succeed; but in this *trial*, let the *Roots* be handsomly spread, and covered a *foot*, or more in height, and above all, firmly staked. This is practicable also

for other *Trees*, where the Soil is over moist, or unkind: For as the *Elm* does not thrive in too *dry*, *sandy*, or *hot* grounds, no more will it abide the *cold* and *spungy*; but in places that are competently fertile, or a little elevated from these annoyances; as we see in the *Mounds*, and castings up of Ditches, upon whose banks the *Female* sort does more naturally delight; though it seems to be so much more addicted to *some* places than to others, that I have frequently doubted, whether it be a pure *Indigene* or *translatitious*; and not onely because I have hardly ever known any considerable *Woods* of them (besides some few *Nurseries* neer *Cambridge*, planted I suppose for store) but almost continually in *Tufts*, *Hedg-rowes*, and *Mounds*; and that *Shropshire*, and several other Counties, have rarely, any growing in many miles together.

9. The *Elm* is by reason of its aspiring, and tapering growth (unless it be *topped* to enlarge the *Branches*, and make them spread low) the least offensive to Corn and *Pasture grounds*, to both which, and the *Cattel*, they afford a benign *shade*, *defence*, and agreeable *Ornament*.

10. It would be planted as *shallow* as might be; for, as we noted, deep *interring* of *Roots* is amongst the *Catholick* mistakes; and of *this*, the greatest to which *Trees* are obnoxious. Let new planted *Elms* be kept moist by frequent refreshings upon some half-rotten *Fern*, or *Litter* laid about the foot of the *stem*; the earth a little stirred and depressed for the better reception, and retention of the *Water*.

11. Lastly, your Plantation must above all things be carefully preserved from *Cattel*, and the concussions of impetuous *Winds*, till they are out of reach of the one, and sturdy enough to encounter the other.

12. When you lop the side-boughs of an *Elm* (which may be about *January* for the Fire, and more frequently, if you desire to have them *tall*; or that you would form them into *Hedges* (for so they may be kept *plashed*, and thickned to the highest twig; affording both a magnificent, and august defence against the *Winds* and *Sun*) I say, when you trim them, be careful to indulge the *tops*; for they protect the body of your *Trees* from the *wet*, which alwayes invades those parts first, and will in time *perish* them to the very heart; so as *Elms* beginning thus to decay, are not long prosperous. Sir *Hugh Plat* relates (as from an expert Carpenter) that the boughs and branches of an *Elm* should be left a foot long next the *trunk*, when they are *lop'd*; but this is to my certain observation a very great mistake either in the *Relator*, or *Authour*; for I have noted many *Elms* so disbranched, that the remaining *stubs* grew immediately *hollow*, and were as so many *Conduits* or *Pipes*, to hold, and convey the *Rain* to the very body and *heart* of the Tree.

13. There is a *Cloyster* of the right *French Elm* in the little *Garden* neer to her *Majesties* the Queen *Mothers* Chappel at *Somerset-house*, which were (I suppose) planted *there*, by the industry of the

the *F. F. Capuchines*, that will perfectly direct you to the incomparable use of this noble *Tree* for *shade* and *delight*, into whatever *figure* you will accustom them. I have my self procured some of them from *Paris*, but they were so abused in the Transportation, that they all perished save *one*, which now flourishes with me: I have also heard of graffing *Elms* to a great improvement of their heads: *Virgil* tells us they will joyn in Marriage with the *Oak*, and they would both be tryed; and that with the more probable successe, for such *lignous* kinds, if you *graff* under the Earth, *upon*, or *neer* the very Root it self, which is likely to entertain the *Cyon* better than when more exposed, till it be well fixt, and have made some considerable progresse.

14. When you would *Fell*, let the *Sap* be perfectly in repose; as 'tis commonly about *November* or *December*, after the *frost* hath well nipp'd them: I have already alleadged my reason for it; and I am told, that both *Oak* and *Elm* so cut, the very *Saplings* (whereof *Rafters*, *Spars*, &c. are made) will continue as long as the very *heart* of the *Tree*, without decay. In this work, cut your kerfe neer to the ground; but have a care that it suffer not in the *fall*, and be ruined with its own weight: This depends upon your *Wood-mans* judgment in *disbranching*, and is a necessary caution to the *Felling* of all other *Timber-trees*. If any begin to *doat*, pick out such for the *Ax*, and rather trust to its *Successor*.

15. *Elm* is a *Timber* of most singular use; especially where it may lie continually *dry*, or *wet*, in extreames; therefore proper for *Water-works*, *Mills*, *Pipes*, *Pumps*, *Aquæ-ducts*, *Ship-planks* beneath the *Waterline*; and some that has been found buried in *Bogs* has turned like the most polish'd, and hardest *Ebony*, onely discerned by the grain: Also for *Wheel-wrights*, *Handles for the single Hand-saw*, the knotty for *Naves*, the straight and smooth for *Axel-trees*, and the very *Roots* for curiously dappled works, scarce has any superior for *Kerbs* of *Coppers*, *Featheridge*, and *Weather-boards*, *Chopping-blocks*, *Blocks* for the *Hatmaker*, *Trunks*, and *Boxes* to be covered with *leather*; for *Dressers*, and *Shovel-board-Tables* of great length, and a lustrous *Colour* if rightly seasoned; also for the *Carver*, by reason of the tenor of the *grain*, and toughnesse which fits it for all those curious works of *Frutages*, *Foleage*, *Shields*, *Statues*, and most of the Ornaments appertaining to the *Orders* of *Architecture*; and for not being much subject to warping; I find that of old they used it even for *hinges* and *hooks* of *Doors*; but then, that part of the *Plank*, which grew towards the top of the *Tree*, was in work to be alwayes reversed: But besides these and sundry other employments, it makes also the second sort of *Charcoal*; and finally (which I must not omit) the use of the very *leaves of* this *Tree*, especially of the *female*, is not to be despis'd; for being suffered to dry in the *Sun* upon the Branches, and the *spray* strip'd off about the *decrease* in *August* (as also where the suckers and *stolones* are super-numerary, and hinder the thriving of their *Nurses*) they will prove

prove a great relief to *Cattel* in *Winter*, and scorching *Summers*; when *Hay* and *fodder* is dear; they will eat them before *Oates*, and thrive exceedingly well with them; remember onely to lay your *Boughs* up in some dry and sweet corner of your *Barn*: It was for this the *Poet* prais'd them, and the Epithite was advis'd,

Fruitful in leaves the Elm. ——*fœcundæ frondibus Ulmi.*

Georg. 2.

In some parts of *Herefordshire* they gather them in *Sacks* for their *Swine*, and other *Cattel* according to this Husbandry. But I hear an ill report of them for *Bees*, that surfeiting of the blooming *Seeds*, they are obnoxious to the *Lask*, at their first going abroad in *Spring*, which endangers whole *Stocks*, if *Remedies* be not timely adhibited; therefore 'tis said in great *Elm* Countries they do not thrive, but the truth of which I am yet to learn. The *Green* leaf of the *Elms* contused, heales a *green wound* or *Cut*, and boyled with the *Bark* consolidates fractur'd *bones*.

CHAP.

CHAP. V.

Of the Beech.

1. THe *Beech*, [*Fagus*] (of *two* or *three* kinds) and numbred amongst the glandiferous Trees, I rank here before the martial *Ash*, because it commonly grows to a greater stature. But here I may not omit a *Note* of the accurate *Critis Palmerius*, upon a passage in *Theophrastus*, where he *Animadverts* upon his *Interpreter*, and shews that the antient φηγὸς was by no means the *Beech*, but a kind of *Oak*; for that the figure of the *fruit* is so widely unlike it; *that* being round, *this* triangular; and both *Theophrastus* and *Pausanias* make it indeed a Species of *Oak*, wholly differing in *Trunk*, as well as *Fruit* and *Leaf*, to which he adds (what determines the Controversie) ξύλον τῆς φηγοῦ ἰσχυρὸν καὶ ἀσηπίδαλον, &c. *That it is of a firm Timber, not obnoxious to the Worm*, neither of which can so confidently be said of the *Beech*. Yet *La Cerda* too seems guilty of the same *mistake*: But leaving this, there are of our *Fagi*, too or three *kinds* with us; the Mountain (where it most affects to grow) which is the whitest, and most sought after by the *Turner*; and the *Campestral* or wild, which is of a blacker colour, and more durable. They are both to be rais'd from the *Mast*, and govern'd like the *Oak* (of which amply) and that is absolutely the best way of furnishing a *Wood*: But they are likewise to be planted of young *seedlings* to be drawn out of the places where the fruitful Trees abound. In *transplanting* them cut off onely the boughs and bruised parts, two *Inches* from the *stem*, to within a yard of the *top*; but be very sparing of the *Root*: This, for such as are of pretty *stature*. They make spreading *Trees*, and noble *Shades* with their well-furnished and glistering *leaves*, being set at forty foot distance; but they grow taller, and more upright in the *Forests*, where I have beheld them at *eight* and *ten* foot, shoot into very long *Poles*; but neither so apt for *Timber*, nor *Fuel*: In the Vallies (where they stand warm and in *Consort*) they will grow to a stupendious *procerity*, though the soyl be stony and very batren: Also upon the *declivities*, sides, and tops of high *Hills*, and *Chalkie Mountains* especially; for they will strangely insinuate their *roots* into the bowels of those seemingly impenetrable places, not much unlike the *Firr* it self, which, with this so common *Tree*, the great *Cæsar* denies to be found in *Britanny*, *Materia cujusque generis, ut in Gallia, præter Fagum & abietem*: But certainly from a grand mistake, or rather, for that he had not travelled much up into

Beech.

Exercit. in Theophrast. l. 3. c. 9.

In Arcad.

into the Countrey. *Virgil* reports it will graff with the *Chesnut*.

2. The *Beech* serves for various *Uses* of the *Housewife*;

Hence in the Worlds best years the humble *Shed*,
Was happily, and fully furnished : (*stools*,
Beech made their *Chests*, their *Beds* and the *Joyn'd-*
Beech made the *Board*, the *Platters*, and the *Bowles*.

Hinc olim juvenis Mundi melioribus annis
Fortunatarum domuum non magna Supellex
Tota petebatur; *Sellas*, *Armaria*, *Lectos*,
Et Mensas dabat, *& Lances*, *& pocula Fagus*, &c.
Couleij Pl. l. 6.

with it the *Turner* makes *Dishes*, *Trays*, *Rimbs* for *Buckets*, and other Utensils, *Trenchers*, *Dresser-boards*, *&c.* likewise for the *Wheeler*, *Joyner*, and *Upholster* for *Sellyes*, *Chairs*, *Stools*, *Bedsteads*, *&c.* for the *Bellows maker*, and *Husbandman* his *Shovel* and *Spade-graffs*; *Floates* for *Fishers Nets* instead of *Corks*, is made of its *Bark*; for *Fuel*, *Billet*, *Bavin* and *Coal* though one of the least lasting: Not to omit even the very *Shavings* for the fining of *Wines*. *Peter Crescentius* writes, that the *Ashes* of *Beech* with proper mixture, is excellent to make *Glasse* with. If the *Timber* lye altogether under *water*, 'tis little inferior to *Elm*, as I find it practised and asserted by *Ship-wrights*: Of old they made their *Vasa Vindimiatoria* and *Corbes Messoriæ* (as we our pots for *Strawberries*) with the *Rind* of this *Beech*; nay, and Vessels to preserve *Wine* in, and that curiously wrought *Cup* which the *Shepherd* in the *Bucholicks* wagers with all, was engraven by *Alcimedon* upon the *Bark* of this *tree*: And an happy age it seems:

—— No Wars did men molest,
When onely Beechen-Bowles were in request.

—— *nec bella fuerunt*,
Faginus astabat dum Scyphus ante dapes.
Tibul.

Of the thin *Lamina* or *Scale* of this wood (as our *Cutlers* call it) are made *Scabards* for Swords and *Bandboxes*, superinduc'd with thin *leather* or Paper, *Boxes* for *Writings*, *Hat-cases*, and formerly *Book-covers*. I wonder we cannot *split* it our selves but send into other *Countreys* for such trifles. In the *Cavities* of these *Trees*, *Bees* much delight to *Hive* themselves: Yet for all this, you would not wonder to hear me deplore the so frequent use of this *Wood*, if you did consider that the industry of *France* furnishes that Country for all domestic *Utensils* with excellent *Wallnut*; a material infinitely preferrable to the best *Beech*, which is indeed good only for *shade* and for *fire*, as being brittle, and exceedingly obnoxious to the *Worm*, where it lyes either *dry*, or *wet* and *dry*, as has been noted; but being put ten dayes in *water*, it will exceedingly resist the *worm*. *Ricciolus* much commends it for *Oars*, and some say, that the vast *Argo* was built of the *Fagus*, a good part of it at least, as we learn out of *Apolonius*; this will admit of Interpretation. But whilst we thus condemn the *Timber*, we must not omit to praise the *Mast*, which fats our *Swine* and *Deer*, and hath in some Families even supported men with bread: *Chios* indured a memorable Siege by the benefit of this *Mast*; and in some parts of *France* they now grind the *Buck* in *Mills*. It affords a sweet

Oyl

Oyl, which the poor People eat most willingly : But there is yet another benefit which this Tree presents us; that its very *leaves* which make a natural, and most agreeable *Canopy* all the Summer; being gathered about the Fall, and somewhat before they are much *frost-bitten*, afford the best and easiest *Mattrasses* in the world to lay under our *Quilts* instead of *straw*; because, besides their tenderness and loose lying together, they continue sweet for seven or eight years long; before which time *straw* becomes *musty* and hard; they are thus used by divers persons of quality in *Dauphine*; and in *Swizzerland* I have sometimes lain on them to my great refreshment; so as of this Tree it may properly be said,

The Wood's an House; the leaves a Bed. ——*Sylva domus, cubilia frondes.*

Juvenal.

The stagnant *water* in the hollow *Trees* cure the most obstinate *Tettars*, *Scabs*, and *Scurfs*, in *Man* or *Beast*, fomenting the part with it; and the *Leaves* chew'd, are wholesome for the *Gums* and *Teeth*, for which the very *Buds*, as they are in Winter hardned and dryed upon the twiggs, make good *Tooth-pickers*. *Swine* may be driven to *Mast* about the end of *August*.

CHAP. VI.

Of the Ash.

Ash. 1. FRaxinus the *Ash*, is with us *Male* and *Female*, the one affecting the higher grounds: The other the plains, of a *whiter* wood, and rising many times to a prodigious stature; so as in forty years from the *Key*, an *Ash* hath been sold for thirty pound *sterling*: And I have been credibly inform'd, that one Person hath planted so much of this one sort of *Timber* in his life time, as hath been valued worth *fifty thousand pounds* to be bought. These are pretty encouragements, for a small, and pleasant industry. That there is a *lower*, and more *knotty* sort, every *Husbandman* can distinguish.

2. The *Keys* being gathered when they begin to fall (which is about the end of *October*, and the ensuing Month) are to be sowed; but not altogether so deep as your former *Masts*: Thus they do in *Spain*: from whence it were good to procure some of the *keyes* from their best trees: A very narrow *Seminary* will be sufficient to store an whole *Country*: They will lye a full *year* in the ground before they appear; therefore you must carefully *Fence* them all that time and have patience: But if you would make a considerable *Wood* of them at once, *Dig*, or *Plow* a parcel of ground, as you would prepare it for *Corn* and with the *Corn* (or what other *Grain* you think fittest) sow also good store of *Keys*, some *Crab-kernels*, *&c.* amongst them: Take off your Crop of Corn, or Seed in its *Season*, and the next year following it will be cover'd with young *Ashes*, which will be fit either to stand (which I prefer) or be *transplanted* for divers years after; and these you will find to be far better then any you can gather out of the *Woods* (especially *Suckers*, which are worth nothing) being removed at one foot stature (the sooner the better) provided you defend them well from *Cattel*: The reason of this hasty *transplanting*, is to prevent their obstnate, and deep rooting; *tantus amor terræ*—— which makes them hard to be taken up when they grow older, and that being removed they take no great hold till the second year, after which, they come away amain: Yet I have *planted* them of five and six inches *diametre*, which have thriven as well as the smaller *wands*. Cut not his *head* at all (which being young is pithy) nor, by any means, the fibrous part of the *Roots*; onely, that down-right, or *Tap-root* (which gives our *Husbandmen* so much trouble in drawing) is to be totally abated: But this work ought to be in the increase of *October*, or *November*, and not in the *Spring*. We are (as I told you) willing to spare his head; because

becauſe being yet young, it is but of a *ſpongie* ſubſtance; but being once well fixed, you may cut him as cloſe to the earth as you pleaſe; it will cauſe him to ſhoot prodigiouſly; ſo as in a few years to be fit for *Pike-ſtaves*. Young *Aſhes* are ſometimes in *Winter froſt-burnt*, black as Coals, and then to uſe the *knife* is ſeaſonable, though they do commonly recover of themſelves ſlowly. In *South-Spain* (where as we ſaid are the beſt) after the firſt dreſſing, they let them grow till they are ſo big, as being cleft into four parts, each part is ſufficient to make a *Pike-ſtaff*: I am told there is a *Flemiſh Aſh* planted by the *Dutchmen* in *Lincolnſhire*; which in ſix years grows to be worth *twenty ſhillings* the Tree; but I am not aſſur'd whether it be the *Aſh* or *Abeele*; either of them were, upon this account, a worthy encouragement. From theſe low Cuttings come our *Ground-Aſhes*, ſo much ſought after for *Arbours*, *Eſpaliers*, and other *Pole*-works: They will ſpring in abundance, and may be reduced to *one* for a *Standard-tree*, or for *Timber*, if you deſign it; for thus *Hydra* like, a *Ground-cut-Aſh*,

By havock, Wounds, and Blows,
More lively and luxuriant grows.

Per damna, per cædes, ab ipſo
Ducit opes animúmque ferro.

Hog.

Aſh will be propagated from a *Bough* ſlipt off with ſome of the *old-wood*, a little before the *Bud* ſwells. Such as they reſerve for *Spears* in *Spain*, they keep ſhrip'd up cloſe to the *ſtem*, and plant them in cloſe order, and moyſter places. Theſe they cut above the *knot* (for the leaſt *nodoſity* ſpoils all) in the decreaſe of *January*, which were of the lateſt for us: It is reported that the *Aſh* will not onely receive its own kind, but *graff*, or be *inoculated* with the *Pear* and *Apple*, but to what improvement I know not.

3. It is by no means convenient to plant *Aſh* in *Plow-lands*; for the *Roots* will be obnoxious to the *Coulter*; and the *ſhade* of the Tree is malignant to *Corn* when the head and branches over-drip it; but in *Hedge-rowes*, and *Plumps*, they will thrive exceedingly, where they may be diſpos'd at nine or ten foot diſtance, and ſometimes neerer: But in planting of a whole *Wood* of ſeveral kinds of Trees for Timber, every third ſet at leaſt, would be an *Aſh*. The beſt *Aſh* delights in the beſt Land (which it will ſoon impoveriſh) yet grows in any; ſo it be not over-wet, and approaching to the *Marſhy*, unleſſe it be firſt well drain'd: By the Banks of ſweet and cryſtal *Rivers* and Streams, I have obſerv'd them to thrive infinitely. One may obſerve as manifeſt a difference in the Timber of *Aſhes*, as of the *Oak*; much more than is found in any one kind of *Elm*, *cæteris paribus*: For ſo the *ground-Aſh* (like the *Oak*) much excells a bough, or branch of the ſame bulk, for ſtrength and toughneſſe; and in yet farther emulation of the *Oak*, it has been known to prove as good, and laſting *Timber* for *Building*, nay, preferr'd before it, where there has

been plenty of *Oake*; vast difference there is also in the strength of *Ground*, and *quarter'd Ash*: 'Tis likewise remarkable that the *Ash*, like the *Cork tree*, grows when the *Bark* is quite peel'd off, as has been observ'd in several *Forests*, where the *Deer* have bared them as far as they could climb: Some *Ash* is curiously camleted and vein'd, I say, so differently from other *Timber*; that our skilful *Cabinet-makers* prize it equal with *Ebony*, and give it the name of *green Ebony*, which the *Customer* payes well for; and when our *Woodmen* light upon it, they may make what mony they will of it: But to bring it to that curious lustre, so as 'tis hardly to be distinguished from the most curiously diaper'd *Olive*, they *Varnish* their *Work* with the *China-varnish* (hereafter described) which infinitely excells *Lynseed-oyl*, that *Cardan* so commends, speaking of this *Root*.

4. The use of *Ash* is (next to that of the *Oak* it self) one of the most universal: It serves the Souldier ——— *& Fraxinus utilis hastis. Ovid.* The *Carpenter*, *Wheel-wright*, *Cart-wright*, for *Ploughs*, *Axel trees*, *Wheelrings*, *Harrows*, *Bulls*, *Oares*, the best blocks for *Pullys* and *Sheffs*, as *Seamen* name them; Also for the *Cooper*, *Turner*, and *Thatcher*: Nothing like it for our Garden *Palisad-hedges*, *Hop-yards*, *Poles*, and *Spars*, *Handles*, *Stocks* for *Tools*, *Spade-trees*, *&c.* In sum, the *Husbandman* cannot be without the *Ash* for his *Carts*, *Ladders*, and other tackling: From the *Pike*, to the *Plow*; *Spear*, and *Bow*, for of *Ash* were they formerly made, and therefore reckon'd amongst those *woods*, which after long tension has a natural *Spring*, and recovers its position; so as in *Peace* and *War* it is a *Wood* in highest request: There is extracted an *Oyl* from the *Ash*, by the *processe* on other Woods, which is excellent to recover the *Hearing*; some drops of it being distill'd warm into the Ears, and for the *Caries* or *rot* of the *Bones*, *Tooth-ach*, pains in the *Kidneys*, and *Spleen*, the anointing therewith is most soveraign. Lastly, the *white*, and rotten dottard part composes a *ground* for our Gallants *Sweet-powder*, and the Truncheons make the third sort of the most durable *Coal*; and is (of all other) the sweetest of our *Forest-fuelling*, and the fittest for Ladies Chambers: To conclude, the very dead leaves afford (like those of the *Elm*) relief to our *Cattel* in *Winter*; and there is a *dwarfe* sort in *France* (it in truth it be not, as I suspect, our *Witchen-tree*) whose Berries feed the poor People, in *scarce* years, but it bears no *Keys*, like to ours; which being *pickled* tender, afford a delicate *Salading*. But the *Shade* of the *Ash* is not to be endur'd, because it produces a noxious *Insect*; and for displaying themselves so very *late*, and falling very *early*, not to be planted for *Umbrage*, or *Ornament*; especially neer the *Garden*, since (besides their predatitious *Roots*) the deciduous *leaves* descending with so long a *Stalk*, are drawn by clusters into the *Worm* holes, which foul the Allies with their falling *Keys*, and suddenly infect the ground. *Note*, that the *Season* for *felling* of this *Tree* must be when the *Sap* is fully at rest; for if you cut it down too early, or over late in the year, it will be so obnoxious

noxious to the *Worm*, as greatly to prejudice the *timber*; therefore to be sure, *fell* not till the three *Mid-winter* Months, beginning about *November*. I am astonish'd at the universal Confidence of all our *Botanists*, that a *Serpent* will rather creep into the *Fire*, than over a twig of *Ash*; this is an old *Imposture* of *Plinys*, who either took it up upon trust, or we mistake the *Tree*.

CHAP. VII.

Of the Chesnut.

1. THe next is the *Chesnut*, [*Castanea*] of which *Pliny* reckons many kinds, especially about *Tarentum* and *Naples*; but we commend those of *Portugal* or *Bayone*, choosing the largest brown and most ponderous for *fruit*, such as *Pliny* calls *Coctivæ*, but the lesser ones to raise for *Timber*. They are produc'd best by *sowing*; previous to which, let the *Nuts* be first spread to sweat, then cover them in *sand*, a Month being past, plunge them in *Water*, reject the *swimmers*; being dry'd for thirty dayes more, *sand* them again, and to the *water-ordeal* as before. Being thus treated till the beginning of *Spring*, or in *November*, set them as you would do *Beans*; and as some practise it, drench'd for a *night* or more, in new *Milk*: They should be put into the *holes* with the poynt upmost as you plant *Tulips*; *Pliny* will tell you they come not up, unless four, or five be pil'd together in a hole; but that is false, if they be good, as you may presume all those to be which passe this *examination*; nor will any of them fail: But being come up they thrive best *unremoved*, making a great *stand* for at least two years, upon every *transplanting*; yet if needs you must alter their *station*, let it be done about *November*, and that into a light friable ground, or moist *Gravel*, however, they will grow even in *Clay*, *Sand*, and all mixed Soils, upon exposed, and bleak places, and the pendent declivities of *Hills* to the *North*, in dry airy places, and sometimes neer *Marshes* and *Waters*; but they affect no other *compost*, save what their own *leaves* afford them, and are more patient of *cold* than *heat*. *Chesnut.*

2. If you desire to set them in *Winter*, or *Autumn*, I counsel you to inter them within their Husks, which being every way arm'd are a good protection against the *Mouse*, and a providential integument. *Pliny l.* 15. *c.* 23. from this natural Guard, concludes them to be excellent *food*, and doubtlesse *Cæsar* thought so, when he transported them from *Sardis* first into *Italy*, whence they were propagated into *France*, and thence among us; another encouragement to make such *Experiments* out of *forain* Countreys. Some

sow

sow them confusedly in the *Furrow* like the *Acorn*, and govern them as the *Oak*; but then would the ground be broken up 'twixt *November* and *February*; and when they spring, be cleansed at two foot asunder, after two years growth: Likewise may Copses of *Chesnuts* be wonderfully increased, and thickned, by *laying* the tender and young branches; but such as spring from the *Nuts* and *Marrons* are best of all, and will thrive exceedingly, if being let stand without removing, the ground be stirr'd and loosned about their Roots, for two or three of the first years, and the superfluous wood prun'd away; and indeed for good Trees, they should be shrip'd up after the first years removal: Thus will you have a *Copse* ready for a *felling*, within eight years, which (besides many other uses) will yield you incomparable *Poles* for any work of the *Garden*, *Vineyard*, or *Hopyard*, till the next *cutting*: And if the Tree *like* the ground, will in ten or twelve years grow to a kind of *Timber*, and bear plentiful fruit.

3. I have seen many *Chess-nut-trees* transplanted as big as my arm, their *heads* cut off at five and six foot height; but they came on at leisure: In such *Plantations*, and all others for *Avenues*, you may set them from thirty, to ten foot distance, though they will grow much neerer, and shoot into *Poles*, if (being tender) you cultivate them like the *Ash*, the nature of whose *shade* it resembles, since nothing affects much to grow under it: Some *Husbands* tell me, that the young *Chess-nut-trees* should not be pruned or touched with any *knife* or *edgetool*, for the first three or four years, but rather crop'd or broken off, which I leave to farther Experience.

4. The *Chesnut* being graffed in the *Wall-nut*, *Oak*, or *Beech* (I have been told) will come exceeding fair, and produce incomparable Fruit; for the *Wall-nut*, and *Chessnut* in each other, it is probable; but I have not as yet made a full attempt; they also speak of Inoculating *Cherrys* in the *Chessnut*-stock for a *later fruit*. In the mean time, I wish we did more universally propagate the *Horse-Chessnut*, which being easily increas'd from layers, grows into a goodly *Standard*, and bears a most glorious flower, even in our cold Countrey: This Tree is now all the *mode* for the Avenues to their Countrey Palaces in *France*, as appears by the late *Superintendents* Plantation at *Vaux*. It was first brought from *Constantinople* to *Vienna*, thence into *Italy*, and so *France*; but to *Us* from the *Levant* more immediately, and flourishes so well, and grows so goodly a *Tree* in compent time, that by *this* alone, we might have ample encouragement to Denizen other *strangers* amongst us.

5. The *Chess-nut* is (next the *Oak*) one of the most sought after by the *Carpenter* and *Joyner*: It hath formerly built a good part of our ancient Houses in the *City* of *London*, as does yet appear. I had once a very large *Barn* neer the *City* fram'd intirely of this *Timber*: And certainly they grew not far off; probably in some *Woods* neer the *Town*: For in that description of *London* written

written by *Fitz-Stephens*, in the Reign of *Hen.* 2. he speaks of a very noble and large *Forest* which grew on the *Boreal* part of it: *Proxime* (sayes he) *patet foresta ingens, saltus nemorosi ferarum, latebræ cervorum, damarum, aprorum, & taurorum Sylvestrium, &c.* A very goodly thing it seems, and as well stor'd with all sorts of good Timber, as with *Venison* and all kind of *Chase*. The *Chesnut* affords the best *Stakes* and *Poles* for *Palisades*, *Pedaments* for *Vine-props*, and *Hops*, as I said before: Also for *Mill-timber* and *Water-works*, or when it may lie buried; but if *water* touch the *Roots* of the growing Trees, it spoils both *Fruit* and *Timber*: 'Tis likewise observed, that this *Tree* is so prevalent against *cold*, that where they stand, they defend other Plantations from the injuries of the severest *frosts*: I am sure being planted in *Hedge-rowes*, *& circa agrorum itinera*, or for *Avenues* to our *Countrey-houses*, they are a magnificent, and royal Ornament: This Timber also does well for *Columns*, *Tables*, *Chests*, *Chairs*, *Stools*, *Bedsteads*; for *Tubs*, and *VVine-Cask*, which it preserves with the least tincture of the *wood* of any whatsoever: If the Timber be dip'd in *scalding Oyl*, and well *Pitch'd*, it becomes extreamly durable: *Beams* made of *Chesnut tree* have this property, that being somewhat brittle, they give warning, and premonish the danger by a certain crackling which it makes: Formerly they made *Consultatory Staves* of this Tree; and the Variegated Rods which *Jacob* peel'd to lay in the *Troughs*, and impresse a fancy in his *Father-in-law's* conceiving *Ewes*, were of this material. The *Coales* are excellent for the Smith, being soon kindled, and as soon extinguisht; but the *Ashes* of *Chesnut-wood* are not convenient for to make a *Lee* with, because it is observ'd to stain the *Linnen*. As for the *Fruit*, 'tis better to beat it down from the Tree, some little time before they fall off themselves; thus, they will the better keep, or else you must smoke-dry them. But we give that fruit to our *Swine* in *England*, which is amongst the delicacies of *Princes* in other Countries; and being of the larger *Nut*, is a lusty, and masculine food for *Rustics* at all times; and of better nourishment for *Husbandmen* than *Cole* and *rusty Bacon*, yea, or *Beans* to boote, instead of which, they boyle them in *Italy* with their *Bacon*; and in *Virgil's* time, they ate them with *Milk* and *Cheese*. The best Tables in *France* and *Italy* make them a *Service*, eating them with *Salt*, in *VVine*, or juice of *Lemon* and Sugar; being first rosted in Embers on the *Chaplet*; and doubtlesse we might propagate their use, amongst our *common people*, (as of old the Βαλανοφάγοι) being a *food* so cheap, and so lasting. In *Italy* they also boyl them in *Wine*, and then smoke them a little, these they call *Anseri* or *Geese*, I know not why: Those of *Piemont* add *Fennel*, *Cinnamon* and *Nutmeg* to their *Wine*, but first they peele them. Others macerate them in *Rose-water*; the Bread of the flower is exceeding nutritive; 'tis a robust food and makes Women well complexion'd, as I have read in a good Authour: They also make *Fritters* of *Chesnut flower*, which they wet with *Rosewater*, and sprinkle with grated

grated *Parmegiano*, and so fry them in fresh *Butter*, a delicate: How we here use them in stew'd-meats, and *Beatille-Pyes*, our *French Cooks* teach us; and this is in truth the very best *use* of their Fruit, and very commendable; for it is found that the eating of them *raw* or in Bread (as they do much about *Limosin*) is apt to swell the belly, though without any other inconvenience that I can learn, and yet some condemn them as dangerous for such as are subject to the *Gravel* in the *Kidnies*. The best way to preserve them, is to keep them in Earthen vessels in a *cold* place; some lay them in a *Smoke-loft*, others, in dry *Barly-straw*, others, in *Sand*, &c. The leaves of the *Chest-nut* tree makes very wholsome *Mattrasses* to lye on, and they are good Litter for *Cattel*: But those *leasie-beds*, for the crackling noyse they make when one turns upon them, the *French* call *Lits de Parliament*: Lastly, the *flower* of *Chessnuts* made into an *Electuary* with *Hony*, is an approved *Remedy* against spitting *blood*, and the *Cough*; and a decoction of the *Rind* of the Tree, tinctures *hair* of a *golden* Colour.

CHAP. VIII.

Of the Wall-nut.

Wall-nut. 1. *JUglans, quasi Jovis glans*, the *Wall-nut*, is of several sorts; the *soft shell*, and the *hard*, the *whiter*, and the *blacker grain*: This *black* bears the worst *Nut*, but the *Timber* much to be preferred, and we might propagate more of them if we were careful to procure them out of *Virginia*, where they abound, or from *Grenoble*, which our *Cabinet-makers* so prize. It is said that the *Wallnut* kernel wrap'd in its own *leaf*, being carefully taken out of its *shell*, brings a *Nut* without *shell*; but this is a trifle; the best way to elevate them is, to set them as you do the *Chessnut*, being planted of the *Nut*, or set at the distance you would have him stand; for which they may be prepared by beating them off the *Tree* (as was prescribed of the *Chessnut*) some dayes before they quit the Branches of themselves, and kept in their *husks*, or without them, till *Spring*, or by bedding them (being dry) in *sand*, or good Earth, till *March*, from the time they fell, or were beaten off the Tree: Or if before, they be set with *husk* and all upon them; for the extream bitterness thereof is most exitial, and deadly to *Worms*; or it were good to strew some *Furzes* (broken or chopp'd small) under the ground amongst them, to preserve them from *Mice* and *Rats*, when their *shells* begin to wax tender; especially if as some, you supple them a little in warm *Cows milk*; but

but being treated as before, you will find them already *sprouted*, and have need onely to be planted where they are to abide; because (as we said long since) they are most impatient of *transplanting*: But if there be an absolute necessity of removing, let your *Tree* be about four years old, and then by no means touch the *head* with your *Knife*, nor cut away so much as the very *Taproot*, if you can well dispose of it, since being of a pithy and hollow substance, the least diminution, or bruise, will greatly endanger the killing: But see here what we have said of the *Chesse-nut*; I have been told, that the very *Tops*, and palish *Buds* of this Tree, when it first sprouts, though as late as *April*, will take hold of the ground, and grow to an incredible improvement; but first they steep them in *Milk* and *Saffron*; but this attempt did not succeed with us, yet it will be propagated by a Branch slipp'd off with some of the old wood, and set in *February*: An industrious and very experienc'd *Husbandman* told me, that if they be *transplanted* as big as ones Middle, it may be done safer than when younger; I do onely report it: What they hint of putting a *Tile-shard* under the *Nuts* when first set, to divaricate and spread the *Roots* (which are otherwise apt to penetrate very deep) I like well enough; 'tis said they will receive their own *Cyons* being *Grafted*, but that it does not at all improve their Fruit: The best compost is the strewing of *Ashes* at the foot of the Trees, the *Salt* whereof being washed into the Earth, is the best dressing, whilst the juice of the fallen *leaves*, though it kill the *Worm*, is noxious to the *Root*.

2. The *Wallnut* delights in a dry, sound, and rich land; especially if it incline to a feeding *Chalk*, or *Marle*; and where it may be protected from the cold (though it affect *cold* rather then extream *heat*) as in great Pits, Vallies, and Highway sides; also in Stonie-grounds, and on Hills, especially *Chalkie*: likewise in *Cornfields*: Thus *Burgundy* abounds with them, where they stand in the midst of goodly *Wheat-lands*, at sixty, and an hundred foot distance; and it is so far from hurting the *crop*, that they look on them as a great Preserver, by keeping the grounds warm; nor do the roots hinder the *Plow*. When ever they fell a *Tree* (which is onely the the old, and decayed) they alwayes plant a young one near him; and in several places 'twixt *Hanaw*, and *Francfort* in *Germany*, no young *Farmer* whatsoever is permitted to *Marry* a *Wife*, till he bring proof that he hath planted, and is a Father of such a stated number of *Walnut-trees*, as the Law is inviolably observed to this day, for the extraordinary benefit which this *Tree* affords the *Inhabitants*: And in truth, were this Timber in greater plenty amongst us, we should have far better *Utensils* of all sorts for our Houses, as *Chairs*, *Stools*, *Bedsteads*, *Tables*, *Wainscot*, *Cabinets*, *&c.* in stead of the more vulgar *Beech*, subject to the *worm*, weak, and unsightly; but which to counterfeit and deceive the unwary, they wash over with a *decoction* made of the *Green husks* of *Walnuts*, *&c.* I say, had we store of this *material*, we should

find an incredible improvement in the more stable *Furniture* of our Houses, as in the first *frugal*, and better dayes of *Rome*, when

Tables made here at home, those times beheld,
Of our own Wood, for that same purpose fell'd,
Old *Walnut* blown down, when the Wind set East.
Sr. R. *Stapylton*.

Illa domi natas, nostraque ex arbore mensas
Tempora viderunt: hos lignum stabat in usus,
Annosam si fortè nucem dejecerat Eurus.
Juv. l. 4. Sat. 11.

for if it had been cut in that season, it would not have prov'd so sound, as we shew in our *Chapter of Felling*. It is certain, that the *Mensæ nucinæ*, were once in price even before the *Citrin*, as *Strabo* notes; and nothing can be more beautiful, than some Planks, and Works which I have beheld of it, especially that which comes from *Grenoble*, of all other the most beautiful and esteemed.

3. They render most graceful *Avenues* to our Country dwellings, and do excellently neer *Hedge-rows*; but had need be planted at forty, or fifty foot interval, for they affect to spread both their Roots and Branches. The *Bergstras* (which extends from *Heidelberg* to *Darmstadt*) is all planted with *Walnuts*; for so by another antient Law, the *Bordurers* were obliged to nurse up, and take care of them; and that chiefly, for their ornament and shade; so as a man may ride for many miles about that Countrey, under a continued *Arbour*, or *Close-walk*; The *Traveller* both refreshed with the *Fruit*, and the *shade*, which some have causlesly defam'd for its ill effects on the *head*, for which the *Fruit* is a *specifique* and a notable *signature*; although I deny not, but the sent of the fallen leaves, when they begin to be *damp'd* with lying, may emit somewhat a heady *steam*, which to some has prov'd noxious; but not whilst they were fresh, and lively upon the Trees. How would such publick *Plantations* improve the Glory and Wealth of a Nation! but where shall we find the *spirits* among our Countrymen? Yes, I will adventure to instance in those *Plantations* of Sir *Richard Stidolph*, upon the *Downs* neer *Lether-head* in *Surry*; and so about *Cassaulton*, where many thousands of these *Trees* do celebrate the *industry* of the *Owners*; and will certainly reward it with infinite *improvement*, as I am assur'd they do in part already, and that very considerably; besides the *Ornament* which they afford to those pleasant *tracts*, for some *Miles* in circumference. I remember *Monsieur Sorbiere*, in a *Sceptical* discourse to *Monsieur de Martel*, speaking of the readinesse of the People in *Holland* to furnish and maintain whatsoever may conduce to the *publick Ornament*, as well as convenience; tells us, that their *Plantations* of these, and the like *Trees*, even in their very *Roads*, and common *Highwayes*, are better preserv'd, and entertain'd (as I my self have likewise been often an eye-witness) then those about the *Houses*, and *Gardens of pleasure* belonging to the *Nobles* and *Gentry* of most other *Countries*: And in effect it is a most ravishing object, to behold their amenities in this particular: With *us* sayes he (speaking of *France*) they make a jest at such political *Ordinances*, by ruining

ruining these publick and useful Ornaments, if haply some more prudent *Magistrate*, do at any time introduce them. Thus in the Reign of *Henry* the *fourth*, during the *Superintendency* of *Monsieur de Sulli*, there was resolution of adorning all the *High-wayes* of *France* with *Elms*, *&c.* but the rude and mischievous *Paysans*, did so hack, steal, and destroy what they had begun, that they were forced to desist from the thorough prosecution of the design; so as there is nothing more expos'd, wild, and lesse pleasant then the Common *Roads* of *France* for want of *shade*, and the decent *limits* which these sweet, and divertissant *Plantations* would have afforded; not to omit that *Political* use, as my Lord *Bacon* hints it, where he speaks of the *Statues* and *Monuments* of brave men, and such as had well deserv'd of the *Publick*, erected by the *Romans* even in their *High-wayes*, since doubtlesse, such noble, and agreeable objects, would exceedingly divert, entertain, and take off the *Minds* and *Discourses* of *Melancholy* people, and pensive *Travellers*, who having nothing but the dull and enclosed Wayes to cast their eyes on, are but ill *Conversation* to themselves, and others, and in stead of Celebrating, Censure their Superiours. It is by a curious *Person*, and industrious *Friend* of mine, observ'd, that the *Sap* of this Tree rises, and descends with the *Suns* diurnal course (which it visibly slackens in the *Night*) and more plentifully at the *Root* on the *South-side*, though those on the *North* were larger, and lesse distant from the Body of the *Tree*; and not onely distill'd from the ends, which were next the *Stem*, but from those which were cut off and separated; which was never observed to happen in the *Birch*, or other *Sap-yielding Trees*.

4. What universal use the *French* make of the *Timber* of this sole Tree, for domestic affairs, may be seen in every Room both of Poor and Rich: It is of singular account with the *Joyner*, for the best grain'd and colour'd *Wainscot*, with the *Gunsmith* for *Stocks*, for *Coach wheels* excellent, and the Bodies of *Coaches*, the *Drum-maker* for *Rimbs*, the *Cabinet-maker* for *Inlayings*, especially the firm and close *Timber* about the *Roots*, which is admirable for *fleck'd* and *chambletted* works, some wood especially, as that which we have from *Bologne* very black of Colour, and so admirably streaked, as to represent natural *flowers*, *Landskips*, and other Fancys: To render this the better coloured, *Joyners* put the boards into an Oven after the *batch is forth*, or lay them in a warm *Stable*, and when they work it, polish it over with its own *Oyl* very hot, which makes it look black and sleek, and the older it is the more esteemable; but then it should not be put in work till thoroughly seasoned, because it will shrink beyond expectation. It is only not good to confide in it much for *beams*, or *Joysts*, because of its brittleness, of which yet, it has been observed to give timely notice, by the crackling before it breaks. Besides the uses of the *Wood*, the *fruit* with *husk* and all when tender and very young, is for *preserves*, for *food*, and *Oyl*, of extraordinary use with the *Painter*, in *whites*, and other delicate Colours; also for *Gold-size*, and *Vernish*; and

with this they polish *Walking-staves*, and other works which are wrought in with burning: For *Food* they Fry with it in some places, and use it to burn in *Lamps*; the younger *Timber* is held to make the better coloured work (and so the *Oak*) but the older more firm and close, is finer *Chambleted* for Ornament; and the very husks and leaves being macerated in warm Water, and that Liquor poured on the *Carpet* of *Walks*, and *Bowling greens*, does infallibly kill the *Worms* without endangering the grasse; not to mention the *Dye* which is made of this *Lixive*, to Colour *Wooll*, *Woods*, and *Hair*, as of old they us'd it. The water of the *Husks* is soveraign against all pestilential infections, and that of the *leaves* to mundifie, and heal inveterate *Ulcers*. That which is produc'd of the *thick-shell*, becomes best *Timber*, that of the *thinner* better *Fruit*. *Columella* has sundry excellent Rules how to ascertain, and accelerate the *growth* of this *Tree*, and to improve its *qualities*, and I am assur'd, that having been *Graffed* on the *Ash* (though others say no *Insition* improves it) they thrive exceedingly; become handsome *Trees*, and what is most estimable, bears its *fruit* within four years; all which I recommend to the farther Industrious. The green *husk* dry'd, or the first peeping red *Buds* and *leaves* reduc'd to *powder*, serves in stead of *Pepper*, to condite *meats* and *sauces*. 'Tis better to cudgel off the *Fruit*, than to gather it by hand; and in *Italy* they arm the tops of long Poles with nails and iron for the purpose, and believe the *beating* improves the *Tree*: Those *Nuts* which come not easily out of their *husks*, should be laid to mellow in heaps, and the rest expos'd in the *Sun*, till the *Shells* dry, else they will be apt to perish the *Kernel*: Some again preserve them in their own *leaves*, or in a *Chest* made of *Walnut-tree* wood; others in *Sand*: Old *Nuts* are not wholesome till macerated in warm and almost boyling *water*; but if you lay them in a *Leaden* pot, and bury them in the *Earth*, so as no *Vermine* can attaque them, they will keep mervellously plump the whole year about, and may easily be blanched: In *Spain* they use to strew the gratings of old and hard *Nuts* (first peeld) into their *Tarts* and other *Meats*. For the *Oyl*, one *Bushel* of *Nuts* will yield fifteen pounds of peeld and cleer *Kernels*, and *that* half as much *Oyl*, which the sooner 'tis drawn, is the more in *quantity*, though the dryer the *Nut* the *better* in *quality*; the *Lees*, or *Marc* of the Pressing, is excellent to fatten *Hogs* with. After the *Nuts* are beaten down, the *leaves* would be swep'd into heaps, and carried away, because their extream Bitterness impairs the ground, and as I am assured, prejudices the *Trees*: The Green *husks* boyled, make a good *Colour* to dye a dark *Yellow*, without any mixture; and the distillation of its *leaves* with *Hony* and *Urine*, makes *Hair* spring in *bald-heads*: Besides its *use* in the Famous *Salernitan Antidote*; if the *Kernel* a little masticated, be applied to the biting of a suspected *Mad-dog*, and when it has lain three hours, be cast to *Poultrey*, they will dye it they eat of it. In *Italy*, when a Countrey man finds any pain in his *Side*, he drinks a Pint of the fresh

fresh *Oyl* of this *Nut*, and finds immediate ease : The *Kernel* being rub'd upon any crack or chink of a Leaking or crasy *Vessel*, stops it better than either *Clay*, *Pitch*, or *Wax* : In *France* they eat them *blanch'd* and fresh with *Wine* and *Salt*, having first cut them out of the *shells* before they are hardned, with a short broad *brasse-knife*, because *Iron* rusts, and these they call *Cernois*, from their manner of scooping them out.

CHAP. IX.

Of the Mulberry.

1. *Morus*, the *Mulberry* : It may possibly be wonder'd by some, why we should insert this *Tree* amongst our *Forest* Inhabitants; but we shall soon reconcile our industrious *Planter*, when he comes to understand the incomparable benefit of it, and that for its *Timber*, durableness, and *use* for the *Joyner* and *Carpenter*, and to make *Hoops*, *Bows*, *Wheels*, and even *Ribs* for small *Vessels* in stead of *Oak*, &c. though the *Fruit* and the *leaves* had not the due value with us, which they diservedly enjoy in other places of the World. *Mulberry.*

2. But it is not here I would recommend our ordinary *black* fruit bearers, though that be likewise worth the propagation; but that *kind* which is call'd the *White Mulberry*, one of them of a *broad leaf*, found in *Province*, whose Seeds being procured from *Paris*, where they have it from *Avignion*, should be thus treated in the *Seminary*.

3. In Countreys where they cultivate them for the *Silk-worm*, and other uses, they sow the perfectly mature *berrys* of a *Tree* whose Leaves have not been gather'd; these they shake down upon an old *Sheet*, spread under the *Tree*, to protect them from Gravel and Ordure, which will hinder you from discerning the *Seed* : If they be not *ripe*, lay them to mature upon Shelves, but by no means till they corrupt; to prevent which, turn them daily; then put them in a fine *Siev*, and plunging it in *Water*, bruise them with your hand; do this in several Waters, then change them in other clear Water, and the *Seed* will sink to the bottom, whilst the *pulp* swims, and must be taken off carefully : This done, lay them to dry in the *Sun* upon a linnen Cloth, for which, one hour is sufficient, then *Van* and sieft it from the *husks*, and reserve it till the season. This is the processe of curious persons, but the sowing of ripe *Mulberries* themselves is altogether as good, and from the excrement of *Hogs*, and even *Dogs* (that will frequently eat them) they will rise abundantly : *Note*, that in sowing the *Berry* 'tis

good

good to squash and bruise them with fine sifted Mould, and if it be rich, and of the old bed, so much the better: They would be interr'd, well moystned and cover'd with *straw*, and then rarely water'd till they peep; Or you may squeeze the ripe *Berrys* in Ropes of *Hair* or *Bast*, and bury them as is prescrib'd for *Hipps* and *Haws*; the *Earth* in which you sow them, should be fine *Mould*, and as rich as for *Melons*, rais'd a little higher then the *Area*, as they make the Beds for ordinary *Pot-herbs*, to keep them loose and warm, and in such *beds* you may sow *Seeds* as you do *Purslane*, mingled with some fine *Earth*, and thinly cover'd, and then for a fortnight strew'd over with *straw*, to protect them both from sudden *heat*, and from *birds*: The Season is *April* or *May*, though some forbear even till *July* and *August*, and in the second quarter of the *Moon*, the Weather calm and serene; at the beginning, keep them moderately fresh (not over wet) and clean *weeded*, secured from the rigor of *Frosts*; the second year of their growth about the beginning of *October*, or early *Spring*, draw them gently out, prune the *Roots*, and dipping them a little in *Pond-water*, transplant them in a warm place or *Nursery*; 'tis best ranging them in *Drills*, two foot large, and one in *depth*, each *rill* three foot distance, and each Plant two. And if thus the new Earth be somewhat lower then the Surface of the rest, 'twill the better receive the *Rain*: Being Planted, cut them all within three *Inches* of the ground. *Water* them not in *Winter*, but in extream necessity, and when the weather is warm, and then do it in the Morning. In this *cold* Season you shall do well to cover the ground with the Leaves of *Trees*, *Straw*, or short *Littier*, to keep them warm; and every year you shall give them three *Dressings* or half diggings; *viz.* in *April*, *June*, and in *August*; this, for the *first* year, still after *Rain*: The second *Spring* after *Transplanting*, purge them of all superfluous *shoots* and *Scions*, reserving only the most towardly for the future *Stem*; this to be done *yearly*, as long as they continue in the *Nursery*; and if of the principal *Stem* so left, the *frost* mortifie any part, cut it off, and continue this government till they are neer *six foot* high, after which suffer them to spread into *head* by discreetly pruning, and fashioning them: But if you plant where *Cattel* may endanger them, the *stem* had need be taller, for they are extreamly liquorish of the leaves.

4. When now they are about five years growth, you may *transplant* them without cutting the *Root* (provided you irradicate them with care) onely trimming the *head* a little; the Season is from *September* to *November* in the *New Moon*, and if the holes or pits you set them in were dug and prepar'd some *months* before, it would much secure their taking; some cast *hornes*, *bones*, *Shells*, *&c.* into them the better to loosen the earth about them, which should be rich, and well refresh'd all *Summer*. A light, and dry *Mould* is best, well expos'd to the *Sun* and *Air*, which above all things this *Tree* affects, and hates *watery* low grounds: In sum, they thrive best where *Vines* prosper most, whose society they exceedingly cherish;

cherish; nor do they lesse delight to be amongst *Corn*, no way prejudicing it with its shade. The *Distance* for these *Standards* would be twenty, or twenty four foot every way, if you would design *Walks* or *Groves* of them; if the environs of *Fields*, Banks of *Rivers*, *High-wayes*, *&c.* twelve or fourteen foot may suffice, but the farther distant, the better.

5. Another Expedient to increase *Mulberries* is, by *Layers* from the *Suckers* at the foot, this done in *Spring*, leaving not above two *Buds* out of the Earth, which you must diligently *water*, and the second year they will be rooted: They will also take by passing any branch or Arm slit, and kept a little open with a wedge, or stone, through a basket of *Earth*, which is a very sure way: Nay, the very *Cuttings* will strike in *Spring*, but let them be from *Shoots* of two years growth, with some of the old Wood, though of seven or eight years; these set in *Rills* like *Vines*, having two or three *Buds* at the top, will *root* infallibly, especially if you *twist* the old Wood a little, or at least *hack* it, though some slit the foot, inserting a stone, or grain of an *Oate*, to suckle and entertain the *Plant* with moysture.

6. They may also be propagated by *Graffing* them on the *black Mulberry* in *Spring*, or *inoculated* in *July*, taking the *cyons* from some old tree, that has broad, even, and round leaves, which causes it to produce very ample and tender leaves, of great emolument to the *Silk-master*.

7. Some experienc'd *Husbandmen* advise to poll our *Mulberries* every three or four years, as we do our *Willows*: others not till 8 years: both erroneously. The best way is yearly to prune them of their dry and superfluous branches, and to form their heads round and natural. The first year of *removal* where they are to abide, cut off all the *shoots* to five or six of the most promising: the next year leave not above three of these, which dispose in *triangle* as near as may be, and then disturb them no more, unless it be to *purge* them (as we taught) of dead *Scare-wood*, and extravagant parts, which may impeach the rest; and if afterward any prun'd branch shoot above three or four *Cyons*, reduce them to that number. One of the best ways of Pruning is, what they practise in *Sicily* and *Province*, to make the head hollow and like a *bell*, by cleansing them of their inmost branches; and this may be done, either before they bud, *viz.* in the *New Moon of March*, or when they are full of leaves in *June* or *July*, if the season prove any thing fresh. Here I must not omit what I read of the *Chinese* culture, and which they now also imitate in *Virginia*, where they have found a way to raise these Plants of the *Seeds*, which they mow and cut like a *crop of grasse* which sprout and bear leaves again in a few moneths.

8. The *Mulberry* is much *improv'd* by stirring the Mould at root, and Lestulion.

9. We have already mentioned some of the *Uses* of this excellent *tree*, especially of the *white*, so called because the *fruit* is of a *paler* colour, which is also of a more *luscious* taste, and lesser than the

the *black*; The *rind* likewise is whiter, and the *leaves* of a mealy clear green colour, and far tenderer, and sooner produc'd by at least a fortnight, which is a marvellous advantage to the newly disclos'd *Silk-worm*; Also they arrive sooner to their maturity, and the food produces a finer *web*. Nor is this *tree* less beautiful to the eye then the faireſt *Elm*, very proper for *Walks* and *Avenues*: The *timber* (amongst other properties) will last in the *water* as well as the most solid *Oak*, and the bark makes good and tough *Bast-ropes*. It suffers no kind of *Vermin* to breed on it, whether standing or fell'd, nor dares any *Caterpillar* attaque it save the *Silk-worm* only. The *Loppings* are excellent *fuel:* but that for which this *tree* is in greateſt and most worthy esteem, is for the *Leaves*, which (besides the *Silk-worm*) nourishes *Cows*, *Sheep*, and other *cattel*; especially young *Porkers*, being boil'd with a little *bran:* and the *fruit* excellent to feed Poultry. In summe, what ever eats of them, will with difficulty be reduc'd to endure any thing else, as long as they can come by them; to say nothing of their other soveraign qualities, as *relaxing* of the *belly* being eaten in the morning, and curing Inflammations and Ulcers of the *mouth* and *throat*, mix'd with *Mel Rosarum*, in which *Receipt* they do best, being taken before they are over-ripe.

10. To proceed with the *Leaf* (for which they are chiefly cherish'd) the benefit of it is so great, that they are frequently *let to farm* for vast summes; so as some one sole *tree* has yielded the *proprietor* a rent of twenty Shillings *per Annum*, for the *Leaves* onely; and six or seven pounds of Silk, worth as many pounds Sterling, in five or six weeks, to those who keep the *worms*. We know that till after *Italy* had made *Silk* above a *thousand* years, they receiv'd it not in *France*; it being hardly yet an *hundred* since they betook themselves to this *manufacture* in *Province*, *Languedoc*, *Dauphine*, *Lionnois*, *&c.* and not in *Tourain* and *Orleans* till *Hen.* the fourth's time; but it is incredible what a *Revenue* it amounts to in that *Kingdom*. About the same time, or a little after, it was that *King James* did with extraordinary care recommend it to this *Nation*, by a *Book of Directions*, *Acts of Councel*, and all other Princely assistance. But this did not take no more then that of *Hen.* the fourth's Proposal about the Invirons of *Paris*, who filled the *High-ways*, *Parks*, and *Gardens* of *France* with the trees, beginning in his own *Gardens* for encouragement: Yet, I say, this would not be brought into example, till this present great *Monarch*, by the indefatigable diligence of *Monsieur Colbert* (*Superintendent* of *His Majesties manufactures*) who has so successfully reviv'd it, that 'tis prodigious to consider what an happy progress they have made in it, to our *shame* be it spoken; who have no other discouragements from any insuperable difficulty whatever, but our *sloth* and want of *industry*: since where ever these *trees* will grow and prosper, the *Silk-worms* will do so also; and they were alike averse, and from the very same suggestions where now that *manufacture* flourishes in our *neighbour* Countries. It is demonstrable, that *Mulberries* in four or five years may be made to spread

spread all over this *Land*, and when the indigent and young *daughters* in proud Families are as willing to gain three or four Shillings a day for gathering *Silk*, and busying themselves in this sweet and easie *imployment*, as some do to get *four pence* a day for hard work at *Hemp*, *Flax*, and *Wool*; the reputation of *Mulberries* would spread in *England* and other Plantations. I might say something like this of *Saffron*, which we yet too much neglect the *culture* of; but, which for all this I do not despair of seeing reassum'd when that good *Genius* returns. In order to this hopeful *Prognostick* we will add a few Directions about the gathering of their *Leaves*, to render this *chapter* one of the most accomplish'd; for certainly one of the most accomplish'd and agreeable *works* in the world.

11. The *Leaves* of the *Mulberry* should be collected from *trees* of seven or eight years old; if of such as are very *young*, it impairs their growth, neither are they so healthful for the *worms*, making them *hydropical* and apt to burst: As do also the *Leaves* of such *trees* as be planted in a too *waterish* or over-rich *soil*, or where no *Sun* comes; and all sick and *yellow* leaves are hurtful. It is better to *clip*, and let the *leaves* fall upon a subtended *sheet* or *blanket*, than to gather them by hand; and to *gather* them, than to *strip* them, which marrs and gauls the *branches*, and bruises the *leaves* that should hardly be touched. Some there are who lop off the *boughs*, and make it their *pruning*, and it is a tolerable way, so it be discreetly done in the over-thick parts of the *tree*; but these leaves gather'd from a separated branch will die, and wither much sooner than those which are taken from the *tree* immediately, unless you set the *stem* in water. *Leaves* gathered from boughs cut off will shrink in three hours; whereas those you take from the living *tree* will last as many days; and being thus a while kept are better than *over-fresh* ones. It is a *Rule*, Never to gather in a *rainy* season, nor cut any *branch* whilst the *wet* is upon it; and therefore against such suspected times you are to provide before hand, and to reserve them in some fresh but dry place: the same *caution* you must observe for the *dew*, though it do not rain, for *wet* food kills the *worms*. But if this cannot be altogether prevented, put the *leaves* between a pair of *sheets* well dried by the *fire*, and shake them up and down 'till the moisture be drunk up in the *Linen*, and then spreading them to the air a little, on another dry cloth, you may feed with them boldly. The top-leaves and oldest would be gathered last of all, as being most proper to repast the *worms* with towards their last change. The *gatherer* must be neat, and have his hands clean, and his *breath* sweet, and not poison'd with *Onions* or *Tobacco*, and be careful not to press the leaves by crouding them into the Bags or Baskets. Lastly, that they *gather* onely (unless in case of necessity) leaves from the *present*, not from the former years sprigs, or old *wood*, which are not onely rude and harsh, but are annex'd to stubb'd Stalks, which injure the *worms*, and spoil the denudated branches.

12. This is what I thought fit to premonish concerning the *ga-*

thering of the Leaves of this *tree* for *Silk-worms*, as I newly find it in *Monsieur Isnard's Instructions*, in that exact *Discourse* of his published some three years since, and dedicated to *Monsieur Colbert*, who has, it seems, constituted this industrious and experienc'd *person*, *Surveyor* of this Princely *manufacture* about *Paris*; and because the *book* it self is rare, and known of by very few. I have no more to adde, but *this* for our *encouragement*, and to encounter the *Objections* which may be suggested about the coldness and moisture of our *Country*; That the *Spring* is in *Province* no less inconstant than is ours in *England*; that the *colds* at *Paris* are altogether as *sharp*; and that when in *May* it has continued *raining* for *nine and twenty* days successively, *Monsieur Isnard* assures us, he proceeded in his *work* without the least disaster; and in the *year* 1664 he presented the *French King* his *Master* with a considerable quantity of better *Silks*, than any *Messina* or *Boulonia* could produce, which he sold raw at *Lions*, for a *Pistol* the *pound*; when that of *Avignion*, *Province*, and *Dauphine* produc'd little above half that price. But you are to expect the compleat *History* of the *Silk-worm* from that incomparable *Treatise*, which the learned *Malpighius* has lately sent out of *Italy*, and dedicated to the *Royal Society* (now ready to be publish'd) as a *specimen*, and noble *effect* of its universal *correspondence* and *concernments* for the improvement of *useful knowledge*.

CHAP. X.

Of the Service.

Service. 1. *Sorbus*, the *Service tree* (of which there are four sorts) is rais'd of the *Chequers* or *Berries*, which being *ripe* (that is) *rotten*, about *September*, may be sown like *Beech-Mast*: It is reported that the *Sower* never sees the *fruit* of his labour; either for that it bears only being very old, or that Men are commonly *so*, before they think of planting *Trees*: But this is an egregious mistake; for these come very soon to be *Trees*, and being planted young, thrive exceedingly; I have likewise planted them as big as my arm successfully: The best way is therefore to propagate them of *Suckers* or *Sets*; they delight in reasonable good ground, rather inclining to cold, then over hot; for in places which are too dry, they never bear kindly. The *Torminalis* is the kind most frequent with us; for those of the narrower and lesse indented *Leaf*, is not so common in *England* as in *France*, bearing a sort of *Berry* of the *Pear* shape, and is there call'd the *Cormier*; this *Tree* may be *Graffed* either with it self, or on the *White-thorn*, and *Quince*.

2. The

2. The *Timber* is useful for the *Joyner*, for the *Engraver* of *Wood-cuts*, *Bows*, *Pulleys*, *Skrews*, *Mill-Spindles* and other, *Goads* to drive *Oxen* with, *&c. Pistol*, and *Gun-Stocks*, and for most that the *Wild-Pear-tree* serves; and being of a very delicate *Grain*, for the *Turner*, and divers *curiosities*, and looks delicately, and is almost everlasting, being rub'd over with *Oyl* of *Linseed*, well boyl'd, and may be made to counterfeit *Ebony*, or almost any *Indian Wood*, colour'd according to *Art*: Also it is taken to Build with, yielding *Beams* of considerable substance: The shade is beautiful for *Walks*, and the *Fruit* not unpleasant, especially the *second* kind, of which with new *Wine* and *Honey*, they make a *Condilum* of admirable effect to corroborate the *Stomach*; and the *Fruit* alone is good in *Dysenteria* and *Lasks*. The *water* distill'd from the *Stalks* of the *Flowers* and *Leaves* on M. B. and twice *Rectified* upon fresh matter, is incomparable for *Consumptive* and Tabed Bodies, taking an *Ounce* daily at several times: Likewise it cures the *Green-sickness* in *Virgins*, and is prevalent in all *Fluxes*; distill'd warm into the Ears it abates the pain: The *Wood*, or *Bark* contus'd and applied to any green Wound, heals it; and the *Powder* thereof drank in *Oyl Olive*, consolidates inward *Ruptures*: Lastly, the *Salt* of the *Wood* taken in decoction of *Althæa* to three *Grains*, is an incomparable Remedy to break and expel Gravel. The *Service* gives the *Husbandman* an early presage of the approching *Spring*, by extending his adorned *Buds* for a peculiar entertainment, and dares peep out in the severest *Winters*.

CHAP. XI.

Of the Maple.

1. THe *Maple* [*Acer minus*] (of which *Authors* (see *Salmasius* upon *Solinus. c.* 33.) reckon very many kinds) was of old held in equal estimation almost with the *Citron*; especially the *Bruscum*, the *French-Maple*, and the *Peacocks-tail Maple*, which is that sort so elegantly undulated, and crisped into variety of *curles*. It were a most laudable attempt, if some would enquire out, and try the planting of such sorts as are not *Indigenes* amongst us; such as is especially the *German Aire*, and that of *Virginia*, not yet cultivated here, but an excellent *Tree*: And if this were extended to other *Timber* and *exotic* Trees, likewise it would prove of extraordinary benefit and Ornament to the *Publick*, and were worthy even of the *Royal* Care. They are all produced of the *Keys*, like the *Ash*; and like to it, affect a sound, and a dry, mould; *Maple.*

growing both in *Woods* and *Hedge-rows*, especially in the latter; which if rather hilly then low, affords the faireſt *Timber*. By ſhreding up the boughs to a head, I have cauſed it to ſhoot to a wonderful height in a little time; but if you would *lop* it for the *fire*, let it be done in *January*. The *timber* is far ſuperiour to *Beech* for all uſes of the *Turner*, who ſeeks it for *Diſhes*, *Cups*, *Trays*, *Trenchers*, *&c.* as the *Joyner* for *Tables*, *Inlayings*, and for the delicateneſs of the grain, when the *knurs* and *nodoſities* are rarely *diapred*, which does much advance its price. Alſo for the lightneſs (under the name *Ayer*) imploy'd often by thoſe who make *Muſical Inſtruments*. But there is a larger ſort, which we call the *Sycomor*.

2. But the deſcription of this leſſer *Maple*, and the ancient value of it, is worth the citing. *Acer operum elegantiâ & ſubtilitate Cedro ſecundum; plura ejus genera: Album, quod præcipui candoris vocatur Gallicum: In Tranſpadana Italia, tránſque Alpes naſcens. Alterum genus criſpo macularum diſcurſu, qui cùm excellentior fuit, à ſimilitudine caudæ pavonum nomen accepit.* 'The *Maple* (ſays *Pliny*) for the 'elegancy and fineneſs of the *wood* is next to the very *Cedar* it ſelf: 'There are ſeveral *kinds* of it, eſpecially the *White*, which is won-'derfully beautiful; this is call'd the *French Maple*, and grows on 'that part of *Italy*, that is on the other ſide of *Po* beyond the *Alpes*: 'The other has a curl'd grain, ſo curiouſly maculated, that from a 'neer reſemblance, it was uſually cal'd the *Peacocks-tayl*, &c. He goes on to commend that of *Iſtria*, and that growing on the Mountains for the beſt: But in the next chapter; *Pulcherrimum vero eſt Bruſcum, multóque excellentius, etiamnum Molluſculum tuber utrumque arboris ejus Bruſcum intortiùs criſpum, Molluſculum ſimplicius ſparſum; Et ſi magnitudinem menſarum caperet, haud dubiè præferretur Cedro, nunc intrà pugillares, lectorúmque ſilicios aut laminas, &c. è Bruſco fiunt menſæ nigreſcentes, &c.* Plin. l. 16. c. 15, 16. 'The *Bruſcum*, or '*Knur* is wonderfully fair, but the *Molluſcum* is counted moſt pre-'cious; both of them *Knobs* and ſwellings out of the *Tree*. The '*Bruſcum* is more intricately criſp'd; the *Molluſcum* not ſo much; 'and had we *Trees* large enough to ſaw into Planks for *Tables*, 'twould be preferr'd before *Cedar* (or *Citron*, for ſo ſome Copies 'read it) but now they uſe it onely for ſmall *Table-books*, and with 'its thin boards to Wainſcot *Bed-Teſters* with, *&c.* The *Bruſcum* 'is of a blackiſh kind, with which they make *Tables*. Thus far *Pliny*. And ſuch ſpotted *Tables* were the famous *Tigrin*, and *Pantherine* Curioſities of, not ſo call'd from being ſupported with figures carved like thoſe Beaſts, as ſome conceive, and was in uſe even in our *Grandfathers* dayes, but from its natural Spots and maculations; ſuch a *Table* was that of *Cicero's*, which coſt him 10000. *Seſterces*; that of King *Juba*, ſold for 15000. and another which I read of, valu'd at 140000 H. S. which at about 3 *d. ſterling*, arives to a pretty Summ; and yet that of the *Mauritanian Ptolomie*, was far richer, containing four Foot and an half diameter, three Inches thick, which is reported to have been ſold for its weight

weight in *Gold* : Of that value they were, and so madly luxurious the age, that when they at any time reproach'd their *Wives* for their wanton Expensiveness in *Pearl* and other rich trifles, they were wont to retort, and turn the *Tables* upon their *Husbands*. The *Knot* of the *Timber* was the most esteem'd, and is said to be much resembled by the Female *Cypress*; we have now, I am almost perswaded, as beautiful Planks of some *Wallnut-trees*, neer the *Root*; and of *Eugh*, *Ivy*, *Rose-wood*, and *Olive*, I have seen incomparable pieces; but the great Art was in the *Seasoning*, and *Poliure*, for which last, the rubbing with a Mans *hand* who came warm out of the *Bath*, was accounted better then any Cloth, as *Pliny* reports. Some there be who contend, this *Citern* was a part neer the Root of the *Cedar*, which, as they describe *that*, is very *Oriental* and *Oderiferous*, but most of the Learned favour the *Citern*, and that it grew not far from our *Tangier*, about the foot of *Mount Atlas*, when haply some industrious Person might procure of it from the *Moors*; and I have not forgotten to put his *Excellency* my Lord *H. Howard* in mind of it, who will have all the opportunities of satisfying our Curiosity, that by comparing it with those elegant *Woods*, both our own *Countreys*, and the *Indies* furnish, we might pronounce something in the Controversie. Here I think good to add what honest *Palissy* Philosophises after his plain manner, about the *reason* of those pretty *undulations* and *chamfers*, which we so frequently find in diverse *Woods*; which he takes to be the *descent* as well as *ascent* of *Moisture*: For what else (sayes he) becomes of that *water* which we often encounter in the *Cavities*, when many branches *divaricate* and spread themselves at the *tops* of great *Trees* (especially *Pollards*) unless (according to its natural appetite) it sink into the very Body of the *Stem* through the *Pores*? For *example*, in the *Wall-nut*, you shall find, when 'tis *old*, that the *Wood* is admirably *figur'd*, and as it were *marbl'd*, and therefore much more esteemed by the *Joyners*, *Cabinet-makers*, *&c.* then the *Young*, which is *paler* of *Colour*, and without any notable *Grain*, as they call it. For the *Rain* distilling along the *Branches*, when many of them break out into clusters from the *stem*, sinks *in*, and is the *Cause* of these *marks*; since we find it exceedingly full of *pores*: Do but *Plane* off a thin *chip*, or *sliver* from one of these *old Trees*, and interposing it 'twixt your *Eye* and the *Light*, you shall observe it to be full of innumerable *holes* (*much more perspicuous and ample, by the application of a good Microscope*) But above all, notable for these extravagant *Damaskings* and *Characters*, is the *Maple*; and 'tis notorious, that this *Tree* is very full of Branches from the *Root* to its very *Summit*, by reason that it produces no considerable *Fruit*: These *Arms* being frequently cut, the *Head* is more surcharged with them, which spreading like so many *Raies* from a *Center*, form that *hollowness* at the top of the *Stem* whence they shoot, capable of containing a good quantity of *Water* every time it *Raines*: This sinking into the *pores*, as was before hinted, is compell'd to divert its course as it passes through

through the Body of the *Tree*, where-ever it encounters the *knot* of any of those *Branches* which were cut off from the *stem*; because their *Roots* not onely deeply penetrate towards the *heart*, but are likewise of themselves very *hard* and *impervious*; and the frequent *obliquity* of this Course of the subsiding *moisture* by reason of these obstructions, is, as may be conceived, the cause of those curious *works*, which we find remarkable in *this*, and other *woods*, whose Branches grow thick from the *Stem*. We have shewed how by *Culture* and stripping up, it arrives to a goodly *Tree*; and surely, there were some of them of large bulk, and noble *Shades*, that *Virgil* should choose it for the *Court* of his *Evander*, one of his Worthiest *Princes* in his best of *Poems* sitting in his *Maple-Throne*; and when he brings *Æneas* into the *Royal Cottage*, he makes him this memorable *Complement*; *Greater*, sayes *great Cowley*, than ever was yet spoken at the *Escurial*, the *Louvre*, or *Whitehall*.

This humble *Roof*, this Rustique *Court*, said he,
Receiv'd *Alcides* crown'd with Victorie:
Scorn not (great *Guest*) the steps where he has trod,
But contemn *Wealth*, and imitate a *God*.

——*Hæc* (*inquit*) *limina Victor Alcides*——

CHAP. XII.

Of the Sycomor.

Sycomor.

THE *Sycomor*, falsely so called, is, our *Acer majus*, one of the *Maples*, and is much more in reputation for its shade than it deserves; for the leaves which fall early (like those of the *Ash*) turn to *Mucilage*, and putrefie with the first moisture of the season; so as they contaminate and mar our *Walks*, and are therefore by my consent to be banish'd from all curious *Gardens* and *Avenues*.

2. There is in *Germany* a better sort of *Sycomor* then ours, wherewith they make *Saddle trees*, and divers other things of use; our own is excellent for *Trenchers*, *Cart*, and *Plow-timber*, being light, tough, and not much inferiour to *Ash* it self; and if the *trees* be very tall and handsome, are the more tolerable for distant *Walks*, especially where other better trees prosper not so well, or where a sudden *shade* is expected.

CHAP.

CHAP. XIII.

Of the Horn-beam.

1. *Ostrys* the *Horn-beam*, in *Latine* ignorantly the *Carpinus*, is planted of *Sets*; though it may likewise be raised from the *Seeds*, which being mature in *August*, should be sown in *October*; but the more expeditious way is by *Sets*, of about an inch *diametre*, and cut within half a foot of the earth: thus it will advance to a considerable Tree. The places it chiefly desires to grow in are in cold *hills*, and in the barren and most expos'd parts of *woods*. *Horn-beam.*

2. Amongst other uses which it serves for, as *Mill-cogs*, &c. (for which it excells either *Yew* or *Crab*) *Toak timber* (whence of old 'twas called ὑλία) Heads of *Beetles*, Stocks and Handles of *Tools*; It is likewise for the *Turners* use excellent: Good *Fire-wood*, where it burns like a *candle*, and was of old so employ'd;

Carpinus tædas fissa facésque dabit.

(For all which purposes its extreme toughness and whiteness commends it to the *Husbandman*.) Being planted in small *Fosses* or *Trenches*, at half a foot *intervall*, and in the single row it makes the noblest, and the stateliest *Hedges* for long *Walks* in *Gardens*, or *Parks*, of any Tree whatsoever whose leaves are *deciduos*, and forsake their Branches in *Winter*; because it grows tall, and so sturdy, as not to be wronged by the *Winds*: Besides, it will furnish to the very foot of the *Stem*, and flourishes with a glossie and polish'd *verdure* which is exceeding delightful, of long continuance, and of all other the harder Woods, the speediest Grower; maintaining a slender, upright-*stem*, which does not come to be *bare* and sticky in many years. That admirable *Espalier-hedge* in the long middle-walk of *Luxembourg* Garden at *Paris* (than which there is nothing more graceful) is planted of this Tree; and so is that *Cradle*, or *Close walk*, with that perplext *Canopy*, which covers the seat in his *Majesties* Garden at *Hampton-Court*. These *Hedges* are *tonsile*; but where they are maintain'd to fifteen, or twenty foot height (which is very frequent in the places before mention'd) they are to be cut, and kept in order with a *Sythe* of four foot long, and very little *falcated*; this is fix'd on a long *sneed* or streight handle, and does wonderfully expedite the trimming of *these*, and the like Hedges.

3. They very frequently plant a *Clump* of these *Trees* before the Entries of most of the great *Towns* in *Germany*, to which they apply *Timber-Frames* for convenience, and the *People* to sit and solace in.

in. *Scamozzi* the *Architect*, sayes, that in his time he found *one* whose Branches extended seventy *foot* in breadth: This was at *Vuimsen* neer the *Necker*, belonging to the Duke of *Witemberg*: But that which I find planted before the Gates of *Strasburgh*, is a *Platanus* and a *Lime tree* growing hard by one another, in which is erected a *Pergolo* eight foot from the ground, of *fifty* foot wide, having ten Arches of twelve foot height, all shaded with their foliage; and there is besides this, an Over grown *Oak*, which has an *Arbour* in it of 60 foot diameter: hear we *Rapinus* describe the use of our *Horn-beam* for *these* and other Elegancies.

In Walkes the *Horn-beam* stands, or in a Maze
Through thousand self-entangling Laby rinths strays:
So clasp the Branches lopp'd on either side,
As though an *Alley* did two *Walls* divide:
This Beauty found, Order did next adorne
The Boughs into a thousand figures shorne,
Which pleasing Objects wearinesse betray'd,
Your feet into a *Wilderneſſe* convey'd.
Nor better Leaf on twining Arbor spread,
Against the scorching *Sun* to shield your head.

In tractus longos facilis tibi Carpinus ibit,
Mille per errores, indeprehensosque recessus,
Et molles tendens secto seu pariete ramos,
Præbebit viridem diverso è margine scenam.
Primus honos illi quondam, post aditus ordo est,
Attonsaque coma, & formis quæsita voluptas
Innumeris, fartoque viæ, obliquoque recessu:
In tractus acta est longos & opaca vireta.
Quinetiam egregiæ tendens umbracula frondis
Temperat ardentes ramis ingentibus æstus.

CHAP. XIV.

Of the Lime-Tree.

Lime-Tree.

Tilia the *Lime-Tree*, or [*Linden*] is of two kinds; the *Male* (which some allow to be but a finer sort of *Elm*) is harder, fuller of knots, and of a redder colour; but producing neither *Flower*, nor *Seed*, as does the *Female*, whose *Blossom* is very odoriferous, perfuming the *Air*: The *Wood* is likewise thicker, of small pith, and not obnoxious to the *VVorm*, so as it seems *Theophrastus*, *de Pl. l.* 3. *c.* 10. said true, that though they were of both Sexes διαφέρουσι δὲ τῇ μορφῇ τῇ ὅλῃ &c. yet they totally differ'd as to their *form*. We send commonly for this Tree into *Flanders* and *Holland*, to our excessive cost, whiles our own *Woods* do in some places spontaneously produce them, and though of somewhat a smaller *leaf*, yet altogether as good, apt to be *civiliz'd*, and made more florid. From thence I have received many of their *Berries*; so as it is a shameful negligence, that we are no better provided of *Nurseries*, of a Tree so choice, and universally acceptable. For so they may be rais'd either of the *Seeds* in *October*, or (with better successe) by the *Suckers*, and *Plants*, after the same *method*, and in as great abundance as the *Elm*, like to *which* it should be cultivated. But not onely by the *Suckers*, at the *Roots*, but even by *Branches* lop'd from the head, may this *Tree* be propagated; and

and peeling off a little of the *Bark*, at a competent distance from the *Stem* or *Arms*, and covering it with *Lome* mingled with rich *Earth*, they will shoot their *fibers*, and may be seasonably separated: But to facilitate *this* and the like attempts, it is advisable to apply a *ligature* above the place, when the *Sap* is ascending, or beneath it, when it descends.

2. The *Lime-tree* affects a rich feeding Soil; in such Ground their growth will be almost incredible for speed and spreading. They may be Planted as big as ones Leg; their *Heads* topp'd at about six foot *bole*; thus it will become (of all other) the most proper and beautiful for *Walks*, as producing an upright *Body*, smooth and even *Bark*, ample *Leaf*, sweet *Blossom*, and a goodly *Shade* at distance of eighteen or twenty foot.

3. The *Prince Elector* did lately remove very great *Lime-trees* out of one of his *Forests*, to a steep Hill exceedingly expos'd to the heat of the *Sun* at *Hidelbourg*; and that in the midst of *Summer*: They grow behind that strong *Tower* on the *South-west*, and most torrid part of the eminence; being of a dry reddish barren Earth; yet do they prosper rarely well: But the Heads were cut off, and the *Pits* into which they were transplanted, were (by the industry and direction of *Monsieur de Son*, a *Frenchman*, that admirable *Mechanicean*, who himself related it to me) fill'd with a composition of *Earth* and *Cow-dung*, which was exceedingly beaten, and so *diluted* with Water, as it became almost a liquid *pap*: It was in *this* that he plunged the *Roots*, covering the surface with the Turf: A singular example of removing so great Trees at such a *season*, and therefore by me taken notice of here expresly.

4. The *Timber* of a well-grown *Lime* is convenient for any use that the *Willow* is; but much to be preferr'd, as being both stronger, and yet lighter; whence *Virgil* calls them *tilias leves*; and therefore fit for *Yokes*, and to be *turn'd* into *Boxes* for the *Apothecaries*; and *Columella* commends *Arculas tiliaceas*. And because of its *Colour* and easie working, *Architects* make with it *Modells* for their designed *Buildings*; and small *Statues*, and little curious *Figures* have been Carved of this *wood*. With the *twigs* they made *Baskets*, and *Cradles*, and of the smoother side of the Bark, *Tablets* for *Writing*; for the antient *Philyra* is but our *Tilia*. *Bellonius* sayes, that the *Grecians* made *Bottles* of it, which they finely *Rozin'd* within side, also *Lattices* for *Windows*. The *Gravers* in *Wood* do sometimes make use of this fine *material*; and even the courset *membrane*, or *slivers* of the *Tree* growing 'twixt the *Bark* and the main *Body*, they now twist into *Bass-ropes*; Besides the *Truncheons* make a far better *Coal* for *Gun-powder* than that of *Alder* it self: And the extraordinary *candor* and *lightnesse*, has dignifi'd it above all the *VVoods* of our *Forest*, in the hands of the Right Honourable the *VVhite-stave* Officers of His *Majesties* Imperial *Court*. Those royal *Plantations* of these Trees in the *Parks* of *Hampton Court*, and St. *James's*; will sufficiently instruct any man how these (and indeed all other

Trees which stand single) are to be govern'd, and defended from the injuries of *Beasts*, and sometimes more *unreasonable* Creatures, till they are able to protect themselves. In *Holland* (where the very *High wayes* are adorn'd with them) they frequently clap three, or four *Deal-boards* (in manner of a close trunk) about them; but it is not so well; because it keeps out the *Air*, which should have free accesse, and intercourse to the *bole*, and by no means be excluded from flowing freely about them, or indeed any other *Trees*; provided they are secur'd from the violence of impetuous winds, *&c.* as his *Majesties* are, without those close *Coffins*, in which the *Dutch-men* seem rather to bury them alive: In the mean time, is there a more ravishing, or delightful object then to behold some intire *streets*, and whole *Towns* planted with these *Trees*, in even lines before their doors, so as they seem like *Cities* in a *VVood?* this is extreamly fresh, of admirable effect against the *Epilepsie*, for which the delicately sented *blossoms* are held prevalent; and skreens the Houses both from *VVinds*, *Sun*, and *Dust*; then which there can be nothing more desirable where Streets are much frequented.

The stately *Lime*, smooth, gentle, streight, and fair,
(With which no other *Dryad* may compare)
With verdant locks, and fragrant Blossoms deckt,
Does a large, ev'n, odorate Shade project.

Stat Philyra; *haud omnes formosior altera surgit*
Inter Hamadryades; *mollissima, candida, lævis,*
Et viridante comâ, & benevolenti flore superba,
Spargit odoratam late, atque æqualiter umbram.
Coulei l. 6. Pl.

The distance for *VValks* may in rich ground be eighteen *foot*, in more ordinary Soil, fifteen, or sixteen.

CHAP. XV.

Of the Quick-Beam.

Quick-beam. 1. THe *Quick-beam* [*Ornus*, or as the *Pinax* more peculiarly; *Fraxinus bubula*, others, the *Wild Sorb*] or (as some term it) the *Witchen*, is a *species* of *wild-Ash*. The *berries* which it produces in *October*, may then be sown; or rather the *Sets* planted: It rises to a reasonable stature, shoots upright, and slender; and consists of a fine smooth *bark*. It delights to be both in *Mountains* and *VVoods*, and to fix it self in good light ground; *Virgil* affirms, 'twill unite with the *Peare*.

2. Besides the use of it for the *Husbandmans* Tools, the *VVheelwright* commends it for being all *heart*; and our *Fletchers* for *Bowes* next to *Engh*, which we ought not to passe over, for the

the glory of right *English* Ancestors : In a *Statute* of *Hen.* 8. you have it mention'd : It is excellent *Fuel*; but I have not yet observed any other use, save that the *Blossoms* are of an agreeable scent, and the *Berries* such a tempting Bait for the *Thrushes*, that as long as they last, you shall be sure of their Company. Some highly commend the *Juice* of the *berries*, which (fermenting of it self) if well preserv'd, makes an excellent Drink, against the *Spleen* and *Scorbut* : *Ale* and *Beer* Brew'd with these *Berries*, being ripe, is an incomparable Drink

---

CHAP. XVI.

Of the Birch.

1. THe *Birch* [*Betula*] is altogether produc'd of *Suckers*, (though it sheds a kind of *Samera* about the *Spring*) which being planted at four or five foot interval, in small Twigs, will suddenly rise to *Trees*; provided they affect the ground, which cannot well be too Barren; for it will thrive both in the dry, and the Wet, Sand, and Stony, *Marshes*, and *Bogs*; the *Water-galls*, and *uliginous* parts of *Forests* that hardly bear any Grasse, do many times spontaneously produce it in abundance, whether the place be high, or low, and nothing comes amisse to it. Plant the small *Twigs*, or *Suckers* having *Roots*, and after the first year, cut them within an *inch* of the surface; this will cause them to sprout in strong and lusty *tufts*, fit for *Coppse*, and *Spring-woods*; or, by reducing them to one *stem*, render them in a very few years fit for the *Turner*. For *Birch.*

2. Though *Birch* be of all other the worst of *Timber*, yet has it its various uses, as for the *Husbandmans Ox-yokes*; also for *Hoops*, *Paniers*, *Brooms*, *Wands*, *bavin bands*, and *Wythes* for *Fagots*; and claims a memory for *Arrows*, *bolts*, *Shafts*, our old *English* Artillery; also for *Dishes*, *Boules*, *Ladles*, and other domestic Utensils, in the good old dayes of more simplicity, yet of *better* and truer *Hospitality* : Also for *Fuel*, *great* and *small-Coal*, which last is made by *charring* the slendrest *brush*, and *summities* of the twigs; as of the Tops and loppings M. *Howards* new *Tanne*. The inner *silken-bark* was antiently us'd for *Writing-Tables*, even before the Invention of *Paper*; and of the out-ward thicker, and courser part, are divers Houses in *Russia*, and those poor *Northern* Tracts cover'd, in stead of *Slates*, and *Tyle* : 'Tis affirm'd by *Cardan*, that some *Birch-roots* are so very extravagantly *rein'd*, as to represent the Shapes and Images of *Beasts*, *Birds*, *Trees*, and

many other pretty resemblances. Lastly, of the *whitest* part of the *old Wood*, found commonly in doating *Birches*, is made the grounds of our *Gallants sweet-Powder*; and of the quite *consum'd* and *rotten*, such as we find reduc'd to a kind of *reddish Earth* in *superexannuated* hollow-trees, is gotten the best Mould for the raising of divers *Seedlings* of the rarest *Plants* and *Flowers*; to say nothing here of the Magisterial *Fasces*, for which anciently the *Cudgels* were us'd by the *Lictor*; as now the gentler *Rods* by our tyrannical *Pædagogues*.

3. I should here add the *uses* of the *Water* too, had I full permission to tamper with all the *Medicinal* virtues of *Trees*: But if the sovereign effects of the *Juice* of this despicable *Tree* supply its other defects (which makes some judge it unworthy to be brought into the *Catalogue* of *Woods* to be propagated) I may for *once* be permitted to play the *Empiric*, and to gratifie our laborious *Woodman* with a Draught of his own *Liquor*: And the rather, because these kind of *Secrets* are not yet sufficiently cultivated; and ingenious *Planters* would by all means be encourag'd to make more *trials* of this nature, as the *Indians*, and other *Nations* have done on their *Palmes*, and *Trees* of several kinds, to their great emolument. The *Mystery* is no more than this: About the beginning of *March* (when the *Buds* begin to be proud and turgid) with a *Chizel* and a *Mallet*, cut a slit almost as deep as the very *Pith*, under some *bough*, or branch of a well spreading *Birch*; cut it *oblique*, and not *long-wayes*: (as a good *Chirurgion* would make his *orifice* in a *Vein*) inserting a small *stone* or *chip*, to keep the *Lips* of the wound a little open: Sir *Hugh Plat*, giving a general Rule for the gathering of *Sap*, and *Tapping* of *Trees*, would have it done within one foot of the ground, the first *rind* taken off, and then the white Bark slit overthwart, no farther then to the *Body* of the Tree: Moreover, that this *wound* be made onely in that part of the *bark* which respects the *South west*, or between those quarters; because (says he) little, or no *Sap* riseth from the *Northern*. In this *slit*, by the help of your *knife* to open it, he directs that a *leaf* of the *Tree* be inserted, first fitted to the dimensions of the slit, from which the *Sap* will distil in manner of *filtration*: Take away the *leaf*, and the *bark* will close again, a little Earth being clapped to the slit: Thus the *Knight* for any *Tree*: But we have already shew'd how the *Birch* is to be treated: Fasten therefore a *Bottle*, or some such convenient *Vessel* appendant: This does the effect as well as *perforation* or *tapping*: Out of this aperture will extil a *limpid* and clear *Water*, retaining an obscure smack both of the *taste* and *odor* of the *Tree*; and which (as I am credibly inform'd) will in the space of *twelve*, or *fourteen* dayes preponderate, and out-weigh the whole *Tree* it self, *Body*, and *Roots*; which if it be constant, and *so* happen likewise in other *trees*, is not onely stupendious, but an *experiment* worthy the Consideration of our profoundest *Philosophers*: *an ex sola aqua fiunt Arbores?* whether *Water* only be the *Principle* of *Vegetables*,

Vegetables, and consequently of *trees* : For evident it is, that we know of no *tree* which does more copiously attract, be it that so much celebrated *Spirit* of the *World* (as they call it) in Form of *Water* (as some) or a certain *specifique liquor* richly *impregnated* with this *Balsamical* property : That there is such a *Magnes* in this simple *tree* as does manifestly draw to it self some *occult* and wonderful *virtue*, is notorious; nor is it conceivable, indeed, the difference between the efficacy of that *Liquor* which distills from the *bole*, or parts of the *tree* neerer to the *Root* (where Sir *Hugh* would celebrate the *Incision*) and that which *weeps* out from the more sublime *Branches*, more impregnated with this *Astral* Vertue, as not so near the *Root*, which seems to attract rather a cruder and more common *water*, through fewer *strainers*, and neither so pure and Aërial as in those refined *percolations*; the nature of the places where these *trees* delight to grow (for the most part lofty, dry, and barren) consider'd. But I refer these Disquisitions to the Learned; especially, as mention'd by that incomparable *Philosopher*, and my most noble Friend, the honourable Mr. *Boyle*, in his *Second part* of the usefulnesse of *Natural Philosophy Sect.* 1. *Essay* 3^d^. where he speaks of the *Manna del Corpo*, or *Trunk-Manna*, as well as of that *Liquor* from the *bough*; so of the *Sura* which the *Coco-trees* afford; and that *Polonian* secret of the Liquor of the *Wallnut-tree* Root; with an encouragement of more frequent *Experiments* to educe *Saccharine* substances upon these occasions : But the *Book* being publish'd so long since this *Discourse* was first ready, I have onely here the liberty to refer the *Reader* to one of the best Entertainments in the world.

4. But whilst this *Second Edition* is now under my hand, there comes to me divers *Papers* upon this *subject* experimentally made by a worthy *Friend* of mine, a *Learned* and most industrious Person, which I had here once resolv'd to have publish'd, according to the generous liberty granted me for so doing; but understanding he was still in pursuit of that *usefull*, and curious *Secret*, I chang'd my resolution into an earnest addresse, that he would *communicate* it to the *World* himself, together with those other excellent Enquiries, and observations which he is adorning for the benefit of *Planters*, and such as delight themselves in those innocent *Rusticities*. I will onely by way of *Corolarie*, hint some particulars for satisfaction of the *Curious*; and especially that we may in some sort gratifie those earnest *suggestions* and *Queries* of the most obliging Publisher of the *Philosophical Transactions*, to whose *indefatigable pains* the Learned World is infinitely engag'd. In compliance therefore to his *Queries*, *Monday Octob.* 19. 1668. *Numb.* 40. p. 797, 821, *&c.* these *Generals* are submitted : That in such *Trials* as my *Friend* essai'd, he has not yet encountred with any *Sap* but what is very clear and sweet; especially that of the *Sycomor*, which has a *dulcoration* as if mixed with *Sugar*, and that it runs one of the earliest: That the *Maple* distill'd when quite rescinded from the Body, and even whilst he yet held it in his hand;

hand: That the *Sycomor* ran at the *Root*, which some dayes before yielded no *Sap*, from his *branches*; the *Experiment* made at the end of *March*: But the accurate knowledge of the nature of *Sap*, and its *periodic* Motions and properties in several *Trees*, should be observed by some at entire *leisure* to attend it daily, and almost continually, and will require more than any one persons industry can afford: For it must be enquir'd concerning every *tree*, its *age*, *soyl*, *scituation*, *&c.* the variety of its ascending *Sap* depending on it; and then of its *Sap* ascending in the *branches* and *Roots*; descending in cut *branches*; descending from *Root* and not from *branches*; the *Seasons* and difference of time in which those *Accidents* happen, *&c.* He likewise thinks the best expedient to procure store of *Liquor*, is, to cut the *Trees* almost quite through all the *Circles* on both sides the *Pith*, leaving only the outmost *Circle* and the *barks* on the *North*, or *North-East* side unpierced; and this *hole* the larger it is bored, the more plentifully 'twill distill; which if it be *under*, and *through* a large *Arm*, neer the Ground, it is effected with greatest advantage, and will need neither *stone* nor *Chip* to keep it open, nor *Spigot* to direct it to the *Recipient*. Thus it will in a short time, afford *Liquor* sufficient to Brew with; and in some of these sweet *Saps*, one Bushel of *Mault* will afford as good *Ale* as *four* in ordinary *Waters*, even in *March* it self; in others, as good as *two* Bushels; for *this*, prefering the *Sycomor* before any other: But to preserve it in best condition for *brewing*, till you are stor'd with a sufficient quantity, it is advis'd that what first runs, be *insolated*, till the remainder be prepar'd to prevent its growing *sowre*: But it may also be *fermented* alone by such as have the *Secret*: To the *Curious* these *Essayes* are recommended. That it be immediately stopp'd up in *bottles* in which it is gathered, the *Corks* well *wax'd* and expos'd to the *Sun*, till (as was said) sufficient quantity be run; then let so much *Rye-bread* (toasted very dry, but not burnt) be put into it as will serve to set it a working; and when it begins to *ferment*, take it out, and Bottle it immediately. If you add a few *Cloves*, *&c.* to steep in it, 'twill certainly keep the *year* about: 'Tis a wonder how speedily it extracts the *tast*, and *tincture* of the *spice*: Mr. *Boyle* proposes a *sulphurous* fume to the *bottles*: *Spirit* of *Wine* may haply not onely preserve, but advance the Vertues of *Saps*; and *Infusions* of *Raisins* are obvious, and without decoction best, which does but spend the more delicate parts. Note that the *Sap* of the *Birch* will make excellent *Meade*.

5. To these Observations, that of the *Weight*, and *Vertue* of the several *Juices* would be both useful and *Curious*: As whether that which proceeds from the *bark*, or between *that* and the *Wood* be of the same nature with that which is suppos'd to spring from the pores of the woody *Circles*? and whether it rise in like quantity upon comparing the *incisures*? All which may be try'd, first attempting through the *bark*, and saving that apart, and then

perforating

perforating into the *Wood* to the thickness of the *bark* or more; with a like separation of what *distills*. The period also of its *current* would be calculated; as how much proceeds from the *bark*, in one *hour*, how much from the *Wood* or Body of the *Tree*; and thus every *hour*, still a deeper incision with a good large *Augre*, till the *Tree* be quite perforated: Then by making a *second hole* within the *first*, fitted with a lesser pipe; the interior *heart-sap* may be drawn apart, and examin'd by *Weight*, *Quantity*, *Colour*, *Distillation*, &c. And if no difference perceptible be detected, the presumption will be greater, that the difference of *heart* and *Sap* in *Timber*, is not from the *Saps* plenty or penury, but the *Season*; and then possibly, the very *season* of *squaring*, as well as *Felling* of *Timber*, may be considerable to the preservation of it.

6. The notice likewise of the *Saps* rising more plentifully, and constantly in the *Sun*, than *Shade*; more in the *Day* than *Night*, more in the *Roots* than *Branch*, more *Southward* than *Northward*, *&c.* may yield many useful *Observations*: As for *Planting*, to set thicker, or thinner (*si cætera sint paria*) namely the nature of the *Tree*, *Soyl*, *&c.*) and not to shade over much the *Roots* of those *Trees* whose *stems* we desire should mount, *&c.* That in *transplanting* Trees we turn the best, and largest *Roots* towards the *South*, and consequently the most ample and spreading part of the *head* correspondent to the *Roots*: For if there be a strong *Root* on that *Quarter*, and but a feeble attraction in the *Branches*, this may not alwayes counterpoise the weak *Roots* on the *North-side*, damnified by the too puissant attraction of over large *Branches*: this may also *suggest* a cause why *Trees* flouriſh more on the *South-side*, and have their *Integument* and *Coates* thicker on those aspects *annually*, with divers other useful *speculations*, if in the mean time they seem not rather to be *puntillos*, over nice for a plain *Forester*.

7. To shew our *Reader* yet, that these are no novel *Experiments*, we are to know, that a large Tract of the World almost altogether subsist on these *Treen* Liquors; Especially, that of the *Date*, which being grown to about seven or eight foot in height, they wound, as we have taught, for the *Sap*, which they call *Toddy*, a very famous *Drink* in the *East-Indies*. This *Tree* increasing every year about a foot, near the opposite part of the first *Incisure*, they pierce again, changing the *Receiver*; and so still by opposite wounds and Notches, they yearly draw forth the *Liquor*, till it arrive to near *thirty* foot upward, and of these they have ample *Groves* and *Plantations* which they set at seven or eight foot distance: But then they use to *percolate* what they extract, through a *Stratum* made of the *Rind* of the *Tree*, well contus'd and beaten, before which preparation it is not safe to Drink it; and 'tis observ'd, that some *Trees* afford a much more generous *Wine*, than others of the same kind. In the *Coco* and *Palmeto* Trees, they Chop a Bough as we do the *Betula*; but in the

the *Date*, make the *Incision* with a *Chisel* in the Body very neatly, in which they stitch a *Leaf* of the *Tree* as a *lingula* to direct it into the appendent *Vessel*, which the subjoyn'd *Figure* represents, and illustrates with its improvement to our former Discourse:

Note, *If there be no fitting* Arms, *the* hole *thus obliquely* perforated, *and a* Faucet *or* pipe *inserted, will lead the* Sap *into the* Recipient.



(a. b.) *the body of the* Tree (g.) *boar'd at that part of the* Arm (f.) *joyn'd to the* Stem, *with an Augre of an* inch *or more* diameter, *according to the bigness of the* Tree. (c.) *a part of the* Bark *bent down into the mouth of the* Bottle (e.) *to conduct the* Liquor *into it.* (d.) *the* String *about the* Arm (f.) *by which the* Bottle *hangs.*

8. The *Liquor* of the *Birch* is esteem'd to have all the Virtues of the *Spirit of Salt*, without the danger of its *acrimony*; most powerful for the dissolving of the *Stone* in the Bladder: *Helmont* shews how to make a *Beer* of the *Water*; but the *Wine* is a most rich

De Lithiasi c. 8. n. 24. 25. &c.

rich *Cordial*, curing (as I am told) Consumptions, and such interior Diseases as accompany the *Stone* in the *Bladder* or *Reins*: This *Wine*, exquisitely made, is so strong, that the common sort of *stone-bottles* cannot preserve the *spirits*, so subtile they are and *volatile*; and yet it is gentle, and very harmlesse in operation within the *body*, and exceedingly sharpens the *Appetite*, being drank *ante pastum*: I will present you a *Receipt*, as it was sent me by a fair *Lady*.

9. To every Gallon of *Birch-water* put a quart of *Hony* well stirr'd together; then boyl it almost an hour with a few *Cloves*, and a little *Limon-peel*, keeping it well scumm'd: When it is sufficiently boil'd, and become cold, add to it three, or four spoonfulls of good *Ale* to make it work (which it will do like new *Ale*) and when the *Yest* begins to settle, *bottle* it up as you do other *winy* Liquors. It will in a competent time become a most brisk, and spiritous *Drink*, which (besides the former virtues) is a very powerful *opener*, and doing wonders for cure of the *Ptisick*: This *Wine* may (if you please) be made as successfully with *Sugar* in stead of *Hony*, ℔j. to each *Gallon* of *Water*; or you may dulcifie it with *Raisins*, and compose a *Raisin-wine* of it. I know not whether the quantity of the sweet *Ingredients* might not be somewhat reduc'd, and the operation improv'd: But I give it as receiv'd.

10. But besides these, *Beech*, *Alder*, *Ash*, *Elder*, *&c.* would be attempted for *Liquors*: Thus *Crabs*, and even our very *brambles*, may possibly yield us *medical* and useful *Wines*. The *Poplar* was heretofore esteem'd more *Physical* than the *Betula*. The *Sap* of the *Oak*, juice, or decoction of the inner bark cures the *Fashions*, or *Farcy*, a *virulent* and dangerous infirmity in *Horses*, and which (like *Cancers*) were reputed incurable by any other *Topic*, then some actual, or potential *cautery*: But, what is more noble; a dear Friend of mine assur'd me, that a Country *Neighbour* of his (at least *fourscore* years of age) who had lain sick of a bloody *Strangury* (which by cruel torments reduc'd him to the very *article* of Death) was, under *God*, recover'd to perfect, and almost *miraculous* health, and strength (so as to be able to fall stoutly to his labour) by one sole Draught of *Beer*, wherein was the *decoction* of the internal *bark* of the *Oak-tree*; And I have seen a Composition of an admirable *sudorific*, and *diuretic* for all affections of the *Liver*, out of the like of the *Elm*, which might yet be drank daily as our *Cophee* is, and with no lesse delight; but *Quacking* is not my *Trade*: I speak onely here as a plain *Husband-man*, and a simple *Forester*, out of the limits whereof I hope I have not unpardonably transgres'd. *Pan* was a *Physician*, and *he* (you know) was *President* of the *Woods*. But I proceed.

CHAP. XVII.

Of the Hasel.

Hasel. 1. NUx *Sylvestris*, or *Corylus*, the *Hasel*, is best rais'd from the *Nuts*, which you shall sow like *Mast* in a pretty deep *furrow* toward the end of *February*: Light ground may immediately be sown and *harrow'd* in very accurately; but in case the mould be *clay*, plow it earlier, and let it be sufficiently mellow'd with the *Frosts*; and then the third year, cut your *Trees* near to the ground with a sharp *bill*, the *Moon* decreasing.

2. But if you would make a *Grove* for Pleasure, *Plant* them in *Fosses* at a *yard* distance, and *cut* them within half a foot of the earth, dressing them for three or four *Springs* and *Autumns*, by onely loosning the *Mould* a little about their roots. Others there are, who set the *Nuts* by hand at one foot distance, to be *transplanted* the third year at a yard asunder: But this work is not to be taken in hand so soon as the *Nuts* fall, till *Winter* be well advanc'd; because they are exceedingly obnoxious to the *Frosts*; nor will they sprout till the *Spring*; besides, *Vermine* are great devourers of them: Preserve them therefore *moist*, not *mouldy*; by laying them in their own *dry* leaves, or in *Sand*, till *January*.

Hasels from Sets and Suckers take. *Planta & duræ Corylî nascuntur*——— Georg 2.

3. From whence they thrive very well, the *shoots* being of the scantlings of small *wands*, and *switches*, or somewhat bigger, and such as have drawn divers *hairy* twiggs, which are by no means to be disbranch'd no more than their *Roots*, unless by a very sparing and discreet hand. Thus your *Coryletum* or *Copse* of *Hasels* being Planted about *Autumn*, may (as some practise it) be cut within three or four inches of the ground the *Spring* following, which the new *Cyon* will suddenly repair, in clusters and tufts of fair *poles* of twenty, and sometimes thirty foot long: But I rather should spare them till two, or three years after, when they shall have taken strong hold, and may be cut close to the very Earth; the improsperous, and feeble ones especially. Thus, are likewise *Filberts* to be treated, both of them improv'd much by *transplanting*, but chiefly by *Graffing*, and it would be try'd with *Filberts*, and even with *Almonds* themselves, for more elegant Experiments.

4. For

4. For the *Place*, they above all affect *cold*, *barren*, *dry*, and *Sandy* grounds; also *Mountains*, and even *Rockie* Soils produce them; but more plentifully, if somewhat moist, dankish, and Mossie, as in the fresher *bottoms*, and sides of *Hills*, and in *Hedge-rowes*. Such as are maintain'd for *Coppses*, may after Twelve years be *fell'd* the first time; the next at seven or eight, *&c.* for by this period their *Roots* will be compleatly vigorous. You may *Plant* them from *October* to *January*, provided you keep them carefully *Weeded* till they have taken fast hold.

5. The use of the *Hasel* is for *Poles*, *Spars*; *Hoops*, *Forks*; *Angling rods*, *Faggots*, *Cudgels*, *Coals*, and *Springes* to catch *birds*; and it makes one of the best *Coals*, once us'd for *Gun-powder*, being very fine and Light, till they found *Alder* to be more fit: There is no Wood which purifies *Wine* sooner, than the *Chipps* of *Hasel*: Also for *VVith's* and *Bands*, upon which I remember *Pliny* thinks it a pretty *Speculation*, that a Wood should be stronger to bind withal being *bruis'd* and *divided*, then when *whole* and *entire*; lastly, for Riding *Switches* and *Divinatory Rods* for the detecting and finding out of *Minerals*; at least, if that *Tradition* be no imposture. But the most signal Honour it was ever employ'd in, and which might deservedly exalt this humble, and common *Plant* above all the *Trees* of the *Wood*, is that of *Hurdles*; not for that it is generally us'd for the Folding of our Innocent *Sheep*, an Emblem of the *Church*; but for making the *Walks* of one of the first *Christian Oratories* in the World; and particularly in this *Island*, that venerable and Sacred Fabric at *Glastenbury*, founded by S. *Joseph* of *Arimathea*, which is storied to have been first compos'd but of a few small *Hasel-Rods* interwoven about certain *Stakes* driven into the ground; and Walls of this kind, in stead of *Laths* and *Punchions*, superinduc'd with a course *Mortar* made of *Loam* and *Straw*, does to this day, inclose divers humble *Cottages*, *Sheads*, and *Out-Houses* in the Countrey; and 'tis strong and lasting for such purposes, *whole*, or *Cleft*, and I have seen ample enclosures of *Courts* and *Gardens* so secur'd.

6. There is a compendious expedient for the thickning of *Coppses* which are too *transparant*, by laying of a *Sampler*, or *Pole* of an *Hasel*, *Ash*, *Poplar*, *&c.* of twenty, or thirty foot in length (the head a little lopp'd) into the ground, giving it a *Chop* near the foot, to make it succumb; *this* fastned to the earth with a *hook* or two, and cover'd with some fresh *mould* at a competent depth (as *Gardeners* lay their *Carnations*) will produce a world of *Suckers*, thicken, and furnish a *Copse* speedily. But I am now come to the *VVater-side*; let us next consider the *Aquatic*.

CHAP. XVIII.

Of the Poplar, Aspen, and *Abele.*

Poplar.

1. *Populus.* I begin this second *Class* (according to our former *distribution*) with the *Poplar*, of which there are several kinds; *White, Black, &c.* (which in *Candy* 'tis reported bears *seed*) besides the *Aspen.* The *white* is the most ordinary with us, to be rais'd in abundance by every *set* or *slip.* Fence the ground as far as any old *Poplar* roots extend, they will furnish you with *suckers* innumerable, to be slipp'd from their *mothers*, and *transplanted* the very first year. You shall need no other *Nursery.* When they are young, their *leaves* are somewhat broader and rounder then when they grow aged. In moist and *boggie* places they will flourish wonderfully, so the ground be not *spewing*; but especially near the *margins* and banks of *Rivers*,

Populus in fluviis ——

and in low, sweet and fertile grounds. Also *trunchions* of seven or eight foot long, thrust two foot into the *earth*, (a hole being made with a sharp hard *stake*, fill'd with *water*, and then with fine *earth* pressed in and close about them) when once *rooted*, may be cut at six inches above ground; and thus placed at a yard distant, they will immediately furnish a kind of *Copse.* But in case you plant them of *rooted trees*, or smaller *sets*, fix them not so *deep*; for though we bury the *trunchions* thus profound, yet is the *root* which they strike commonly but shallow. They will make prodigious *shoots* in 15 or 16 years; but then the *heads* must by no means be diminish'd, but the lower branches may, yet not too far up: the *foot* would also be cleansed every second year. This for the *White.* The *Black Poplar* is frequently *pollar'd* when as big as ones arm, eight or nine foot from the ground, as they trim them in *Italy* for their *Vines* to serpent on, and those they *poll* or *head* every second year, sparing the middle, streight and thrivingest *shoot*, and at the third year cut *him* also.

2. The *shade* of this *tree* is esteemed very wholesome in *Summer*, and the *leaves* good for *cattel*, which must be stripp'd from the cut boughs before they are faggotted. This to be done in the decrease of *October*, and reserv'd in bundles for the winter *fodder.* The *wood* of white *Poplar* is sought of the *Sculptor*, and they saw both sorts into *boards*, which, where they lie dry, continue a long time. Of this material they also made *Shields* of defence in *Sword and Buckler* days. *Dioscorides* writes, that the *bark* chopt small, and sow'd in rills, well and richly manur'd and watered, will

will produce a plentiful crop of *Mushrums*. It is to be noted, that those *Fungi*, which spring from the putrid stumps of this *tree*, are not *venomous* (as of all or most other trees they are) being gathered after the first *Autumnal* rains.

3. They have a *Poplar* in *Virginia* of a very peculiar shap'd *leaf*, as if the point of it were cut off, which grows very well with the *curious* amongst us to a considerable stature. I conceive it was first brought over by *John Tradescant* under the name of the *Tulip-tree*, but is not that I find taken notice of in any of our *Herbals*; I wish we had more of them.

4. The *Aspen* onely (which is that kind of *Libica* or white *Poplar*, bearing a smaller and more tremulous leaf) thrusts down a more searching foot, and in this likewise differs, that *he* takes it *ill* to have his *head* cut off: *Pliny* would have short *trunchions* couched two foot in the ground (but first two days dried) at one foot and half distance, and then moulded over. *Aspen.*

5. There is something a finer sort of *white Poplar*, which the *Dutch* call *Abele*, and we have much transported out of *Holland*: these are also best propagated of *slips* from the *roots*, the least of which will *take*, and may in *March*, at three or four years growth be transplanted. *Abele.*

6. In *Flanders* (not in *France*, as a late Author *pretends*) they have large *Nurseries* of them, which first they plant at one foot distance, the mould light and moist, by no means *clayie*, in which though they may shoot up tall, yet for want of root they never spread; for, as I said, they must be *interr'd* pretty deep, not above three inches above ground; and kept clean by *pruning* them to the middle *shoot* for the first two years, and so till the third or fourth. When you *transplant*, place them at eight, ten, or twelve foot intervall: They will likewise grow of *layers*, and even of *cuttings* in very moist places. In *three years* they will come to an incredible altitude; in *twelve*, be as big as your middle; and in *eighteen* or *twenty*, arrive to full perfection. A *specimen* of this advance we have had of an *Abele* tree at *Sion*, which being lopp'd in *Febr.* 1651, did by the end of *October* 52 produce branches as big as a mans *wrist*, and 17 foot in length: for which celerity we may recommend them to such late *builders*, as seat their *houses* in naked and unsheltered places, and that would put a guise of *Antiquity* upon any new *Inclosure*; since by these, whilest a man is in a *voyage* of no long continuance, his *house* and *lands* may be so covered, as to be hardly known at his return. But as they thus increase in *bulk*, their *value* (as the *Italian Poplar* has taught us) advances likewise; which after the first seven years is annually worth *twelve pence* more; So as the *Dutch* look upon a *plantation* of these *trees* as an ample portion for a *daughter*, and none of the least effects of their good *Husbandry*; which truly may very well be allow'd if that *calculation* hold, which the *Knight* has asserted, who began his *plantation* not long since about *Richmond*, that 30 *lib.* being laid out in these *plants*, would render at the least *ten thousand pounds* in *eighteen* years;

years; every *tree* affording thirty *plants*, and every of them thirty more, after each seven years improving *twelve pence* in growth, till they arrived to their *acme*.

7. The *Black Poplar* grows rarely with us; it is a stronger and taller tree then the *White*, the *leaves* more dark, and not so ample. Divers stately ones of these I remember about the banks of *Po* in *Italy*; which *river* being the old *Eridanus*, so celebrated by the *Poets*, in which the temerarious *Phaeton* is said to have been *precipitated*, doubtless gave argument to that *fiction* of his sad Sisters *Metamorphosis* into these *trees*; but for the *Amber* of their pretious *tears* I could hear of no such matter, whiles passing down that River towards *Ferrara*, I diverted my self with this story of the ingenious *Poet*. I am told there is a *Mountain Poplar* much propagated in *Germany* about *Vienna*, and in *Bohemia*, of which some trees have yielded *Planks* of a yard in breadth.

8. The best use of the *Poplar* and *Abele* (which are all of them *hospitable* trees, for any thing thrives under their *shades*) is for *Walks* and *Avenues* about Grounds which are situated low, and near the water, till coming to be very old, they are apt to grow *knurry*, and out of proportion. The *timber* is incomparable for all sorts of white *wooden vessels*, as *Trays*, *Bowls*, and other *Turners* ware; and of especial use for the *Bellows-maker*, because it is almost of the nature of *Cork*, though not very solid, yet very close: also for *wooden heels*, &c. *Vitruvius l.* 2. *de materia cædenda* reckons it among the Building Timbers, *quæ maximè in ædificiis sunt idoneæ*. Likewise to make *Carts*, because it is exceeding light; for *Vine*, and *Hop-props*, and divers *viminious* works. The loppings in *January* are for the *fire*; and therefore such as have proper Grounds, may with ease and in short time store themselves for a considerable *family*, where *fuel* is dear: but the truth is, it burns untowardly, and rather moulders away than maintains any solid heat. Of the twigs (with the leaves on) are made *Brooms*. The *Brya* or *Catkins* attract the *Bees*, as do also the *leaves* (especially of the *black*) more tenacious of the *Meledews* then most other *Forest-trees*, the *Oak* excepted.

Of the *Aspen* our *Wood-men* make *Hoops*, *Fire-wood*, and *Coals*, *&c.*

The juice of *Poplar* leaves drop'd into the *ears* asswages the pain; and the *buds* contus'd and mix'd with *Hony*, is a good *Collyrium* for the *eyes*.

CHAP.

CHAP. XIX.

Of the Alder.

1. *Alnus*, the *Alder* is of all other the most faithful lover of *watery* and *boggie* places, and those most despis'd weeping parts or *water-galls* of *Forests*;—— *crassisque paludibus Alni.* *Alder.*
They are propagated of *Trunchions*, and will come of *seeds* (for so they raise them in *Flanders*, and make wonderful profit of the *plantations*) like the *Poplar*; or of *Roots*, which I prefer, being set as big as the small of ones leg, and in length about two foot; whereof one would be plunged in the *mud*. This profound fixing of *Aquatick trees* being to preserve them *steddy*, and from the concussions of the *winds*, and violence of *waters* in their *liquid* and slippery foundations. They may be placed at four or five foot distance, and when they have struck *root* you may *cut* them, which will cause them to spring in *clumps*, and to shoot out into many useful *Poles*. But if you plant smaller *Sets*, cut them not till they are arriv'd to some competent bigness; and that in a proper *season*: which is, for all the *Aquatics* not till *Winter* be well advanc'd, in regard of their *pithy* substance. Therefore, such as you shall have occasion to make use of before that period, ought to be well-grown, and *fell'd* with the *earliest*, and in the first *quarter* of the increasing *Moon*; that so the successive *shoot* receive no prejudice. But there is yet another way of planting *Alders* after the *Jersey* manner, and as I receiv'd it from a most ingenious *Gentleman* of that Country, which is, by taking *trunchions* of two or three foot long, at the beginning of *Winter*, and to bind them in *faggots*, and place the *ends* of them in *water* till towards the *Spring*, by which season they will have contracted a swelling *spire* or *knurr* about that part, which being set, does (like the *Gennet-moil* Apple) never fail of growing and striking root. There is a *black* sort more affected to *Woods* and drier grounds.

2. There are a sort of *Husbands* who take excessive pains in *stubbing* up their *Alders*, where ever they meet them in the *boggie* places of their grounds, with the same indignation as one would extirpate the most pernicious of *Weeds*; and when they have finish-ed, know not how to convert their best *lands* to more profit then this (seeming despicable) *plant* might lead them *to*, were it rightly understood. Besides, the *shadow* of this *tree* does feed and nourish the very *grass* which grows under it; and being set and well plash-ed, is an excellent defence to the banks of *Rivers*; so as I wonder it is not more practis'd about the *Thames*, to fortifie and prevent the

the mouldring of the *walls*, and the violent *weather* they are exposed to.

3. You may cut *Aquatic-trees* every third or fourth year, and some more frequently, as I shall shew you hereafter. They should also be abated within half a foot of the principal *head*, to prevent the perishing of the main *Stock*; and besides, to *accelerate* their sprouting. In setting the *Trunchions* it were not amisse to prepare them a little after they are fitted to the size, by laying them a while in *water*; this is also practicable in *Willows*, *&c.*

4. Of old they made *Boats* of the greater parts of this Tree, and excepting *Noah's Ark*; the first *Vessels* we read of, were made of this *Wood*.

When hollow Alders *first* the Waters tri'd, *Tunc alnos primum fluvii sensêre cavatas.* Georg. 1.

And down the rapid *Poe* light Aldars glide. *Nec non & torrentem undam levis innatat alnus*
Missa Pado—— 2.

And as *then*, so *now*, are over-grown *Alders* frequently sought after, for such *Buildings* as lye continually under *water*, where it will harden like a very *stone*; whereas being kept in any unconstant temper it *Rots* immediately, because its natural *humidity* is of so near affinity with its adventitious; as *Scaliger* assigns the cause. *Vitruvius* tells us, that the *Morasses* about *Ravenna* in *Italy*, were *pil'd* with this *Timber*, to *superstruct* upon, and highly commends it. I find also they us'd it under that famous *Bridge* at *Venice*, the *Rialto* which passes over the *Gran-Canal* bearing a vast weight.

5. The Poles of *Alder* are as useful as those of *Willows*; but the *Coals* far exceed them; especially for *Gun-powder*: The *wood* is likewise useful for *Piles*, *Pumps*, *Hop-poles*, *Water-pipes*, *Troughs*, *Sluces*, small *Trays*, and *Trenchers*, *Wooden-heels*; the *bark* is precious to *Dyers*, and some *Tanners* and *Leather-dressers* make use of it; and with *it*, and the *Fruits* (in stead of *Galls*) they make *Ink*. The fresh *Leaves* alone applied to the naked *soal* of the *Foot*, infinitely refresh the surbated *Traveller*; and the swelling *bunches* which are now and then found in the old Trees, afford the *Inlayer* pieces curiously *chambletted* and very hard, *&c.* but the *Fagots* better for the *Fire* than for the *draining* of Grounds, by placing them (as the guise is) in the *Trenches*; which old rubbish of *Flints*, *Stones*, and the like grosse materials, does infinitely exceed, because it is for ever, preserves the *Drains* hollow, and being a little moulded over will produce good *grass*, without any detriment to the ground; but this is a *secret*, not yet well understood, and would merit an expresse *Paragraph*, were it here seasonable,

——*& jam nos inter opacas*
Musa vocat Salices——

CHAP.

CHAP. XX.

Of the Withy, Sally, Ozier, and Willow.

Withy.

1. *Salix*, since *Cato* has attributed the *third place* to the *Salictum*, preferring it even next to the very *Ortyard*; and (what one would wonder at) before even the *Olive*, *Meadow*, or *Corn-field* it self (for *Salictum tertio loco, nempe post vineam, &c.*) and that we find it so easily rais'd, of so great and universal *Use*, I have thought good to be the more particular in my Discourse upon them; especially, since so much of that which I shall Publish concerning them, is deriv'd from the long *Experience* of a most Learned and ingenious *Person*, from whom I acknowledge to have receiv'd many of these hints. Not to perplex the *Reader* with the various names, *Greek*, *Gallic*, *Sabinic*, *Amerine*, *Vitex*, *&c.* better distinguish'd by their *growth*, and *bark*; and by *Latine Authors* all comprehended under that of *Salices*; and our *English* Books reckon them promiscuously *thus*; The *Common-white Willow*, the *Black*, and the *Hard-black*, the *Rose* of *Cambridge*, the *Black-Withy*, the *Round-long Sallow*; the *longest Sallow*, the *Lesser-broad leav'd Willow*, *Silver Sallow*, *Upright broad-Willow*, *Repent broad-leaf'd*, the *Red-stone*, the *Lesser Willow*, the *Strait-Dwarf*, the *Creeper*, the *Black-low-Willow*, the *Willow-bay*, and the *Ozier*. I begin with the *Withy*.

2. The *Withy* is a reasonable large *Tree*, and fit to be planted on high Banks; because they extend their Roots deeper then either *Salleys* or *Willows*. For this reason you shall Plant them at ten, or twenty foot distance; and though they grow the slowest of all the *Twiggie* Trees; yet do they recompence it with the larger *crop*; the *wood* being tough, and the *Twigs* fit to bind strongly; the very *peelings* of the branches being useful to bind *Arbor*-poling, and in *Topiary* works, *Vineyards*, *Espalier-fruit*, and the like. There are two principal sorts of these *Withies*, the *hoary*, and the *red Withy* which is the *Greek*; tougheſt, and fitteſt to *bind*, whiles the Twigs are flexible and tender.

Sally.

3. *Sallyes* grow much faster, if they are Planted within reach of *water*, or in a very *Mooriſh* ground, or flat plain; and where the Soil is (by reason of extraordinary moisture) unfit for *Arable*, or *Meadow*; for in these cases it is an extraordinary *improvement*: In a word, where *Birch*, and *Alder* will thrive. Before you *Plant* them, it is found best to turn the ground with a *Spade*; especially, if you design them for a flat. We have three sorts of *Sallyes* amongst us (which is *one* more than the *Antients* challeng'd, who

name onely the *Black*, and *White* which was their *Nitellina*) the *vulgar*, which proves best in dryer Banks, and the *hopping-Sallyes* which require a moister Soil, growing with incredible celerity: And a *third* kind, of a different *colour* from the other *two*, having the twigs *reddish*, the Leaf not so long, and of a more dusky *green*; more brittle whilst it is growing in *twigs*, and more tough when arriv'd to a competent size: All of them useful for the *Thatcher*.

4. Of *these*, the *hopping-Sallyes* are in greatest esteem, being of a clearer *terse* grain, and requiring a more *succulent* Soil; best planted a foot deep, and a foot and half above ground (though some will allow but a foot) for then every branch will prove excellent for future *setlings*. After *three* years growth (being cropped the second and third) the first years increase will be 'twixt *eight* and *twelve* foot long generally; the *third* years growth strong enough to make *Rakes*, and *Pike-staves*; and the *fourth* for M. *Blithes*'s trenching *Plow*, and other like *Utensils* of the *Husbandman*.

5. If ye Plant them at full height (as some do, at four years growth, setting them five, or six foot length, to avoid the biting of *Cattel*) they will be lesse useful for streight *staves*, and for *setlings*; and make lesse speed in their growth; yet this also is a considerable *improvement*.

6. These would require to be Planted at least five foot distance, (some set them as much more) and in the *Quincunx* order: If they affect the *Soil*, the *Leaf* will come large, half as broad as a Man's hand, and of a more vivid *green*, alwayes larger the first year than afterwards: Some Plant them sloping, and cross-wise like a *Hedge*, but this impedes their wonderful growth; and (though *Pliny* seems to commend it, teaching us how to *excorticate* some places of each *set*, for the sooner production of *shoots*) it is but a deceitful *Fence*, neither fit to keep out *Swine*, nor *Sheep*; and being set too near, inclining to one another, they soon destroy each other.

7. The worst *Sallyes* may be planted so neer yet, as to be instead of *Stakes* in a *Hedge*, and then their Tops will supply their dwarfishnesse; and to prevent *Hedge-breakers* many do thus Plant them; because, they cannot easily be pull'd up, after once they have struck *root*.

8. If some be permitted to wear their *Tops* five or six years, their *Palms* will be very ample, and yield the first, and most plentiful relief to *Bees*, even before our *Abricots* Blossom. The *hopping-Sallys* open, and yield their *Palms* before other *Sallys*, and when they are *blown* (which is about the *exit* of *May*, or sometimes *June*) the *Palms* (or ὀλισπαζόμοι, *frugiperdæ* as *Homer* terms them for their extream levity) are four inches long, and full of a fine *lanuginous Cotton*: A poor Body might in an hours space, gather a pound or two of it, which resembling the finest *Silk*, might doubtlesse be converted to some profitable use by an ingenious *House wife*, if gather'd

in

in calm *Evenings*, before the *Wind*, *Rain* and *Dew* impair them; I am of opinion, if it were dri'd with care, it might be fit for *Cushions*, and *Pillows* of *Chastity*, for such of old was the reputation of those *Trees*.

9. Of these *hopping Sallys*, after three years Rooting, each Plant will yield about a score of *Staves* of full eight foot in length, and so following, for use, as we noted above: Compute then how many fair *Pike-staves*, *Perches*, and other useful *Materials*, that will amount to in an *Acre*, if Planted at five foot interval: But a fat, and moist Soil, requires indeed more space than a lean or dryer; namely *six*, or *eight* foot distance.

10. You may Plant *setlings* of the very first years growth; but the *second* year they are better, and the *third* year better then the *second*; and the *fourth* as good as the *third*; especially, if they approach the *Water*. A bank at a foot distance from the *water*, is kinder for them then a *Bog*, or to be altogether *immers'd* in the *water*.

11. 'Tis good to new-*mould* them about the *Roots* every second or third year; but *Men* seldom take the pains. It seems that *Sallys* are more hardy then even *Willows* and *Oziers*, of which *Columella* takes as much care as of *Vines* themselves. But 'tis cheaper to supply the *vacuity* of such accidental decays by a new *Plantation*, then to be at the charge of *digging* about them three times a year, as that *Author* advises; seeing some of them will decay, whatever care be used.

12. *Sallys* may also be propagated like *Vines*, by *courbing*, and bowing them in *Arches*, and covering some of their parts with mould, *&c.*

13. For *Setlings*, those are to be preferr'd which grow neerest to the *Stock*, and so (consequently) those *worst*, which most approach the *Top*. They should be Planted in the first fair, and pleasant Weather in *February*, before they begin to *bud*; we about *London* begin at the latter end of *December*. They may be cut in *Spring* for *Fuel*, but best in *Autumn* for *use*; but in this work (as of *Poplar*) leave a *twig* or two; which being twisted *Arch-wise*, will produce plentiful *sprouts*, and suddenly furnish a *head*.

14. If in our *Coppses* one in four were a *Sally* set, amongst the rest of varieties, the profit would recompence the care.

15. The swift growing *Sally* is not so tough, and hardy for some *uses* as the *slower*, which makes *Stocks* for Gard'ners *Spades*; but the other are proper for *Rakes*, *Pikes*, *Mops*, *&c.* *Sally-Coal* is the soonest consum'd; but of all others the most accommodate for *Painters* to design their *Work*, and *first draught* on *Paper* with, *&c.* as being fine, and apt to slit into *Pencils*.

16. To conclude, there is a way of *Graffing* a *Sally* trunchion; take it of two foot and half long as big as your *wrist*; Graff at both ends a *Figure*, and *Mulberry* Cyon of a foot long, and so, without *claying*, set the *Stock* so far into the ground as the *Plant* may be three or four inches above the Earth: This will thrive ex-

ceedingly the *first* year, and in *three*, be fit to *transplant*. The Season for this Curiosity is *February*.

Oziers. 17. *Oziers* or the *Aquatic Salix*, are of innumerable kinds, commonly distinguish'd from *Sallyes*, as *Sallyes* are from *Withies*; being so much smaller then the *Sallyes*, and shorter *liv'd*, and requiring more constant *moisture*, yet would be Planted in rather a *dryish* ground, than over *moist* and spewing, which we frequently cut Trenches to avert: It likewise yields more limber, and flexible *twigs* for *Baskets*, *Flaskets*, *Hampers*, *Cages*, *Lattices*, *Cradles*, the Bodies of *Coaches*, and *Wagons*, for which 'tis of excellent use, light, durable, and neat, as it may be wrought and cover'd: For *Chairs*, *Hurdles*, *Stayes*, *Bands*, *&c.* likewise for Fish *Wairs*, and to support the *Banks* of impetuous *Rivers*: In fine, for all *Wicker* and *Twiggie* Works:

Viminibus Salices——

18. But these sort of *Oziers* would be cut in the new *shoot*; for if they stand longer they become more inflexible; *cut* them close to the *head* (a foot or so above earth) about the beginning of *October*; unless you will attend till the *Cold* be past, which is better; and yet we about *London*, Cut them in the most piercing *Seasons*, and Plant them also till *Candlemass*, which those who do not observe, we Judge ill Husbands, as I learn from a very Experienc'd *Basket-maker*; and in the *decrease*, for the benefit of the *Workman*, though not altogether for *that* of the *Stock*, and succeeding *Shoot*: When they are *cut*, make them up into *bundles*, and give them shelter; but such as are for *White-work* (as they call it) being thus *fagotted*, and made up in *Bolts*, as the tearm is, severing each sort by themselves, should be set in *water*, the ends dipped; but for *black*, and *unpeel'd* preserv'd under Covert only, or in some *Vault* or *Cellar*, to keep them *fresh*, sprinkling them now and then in excessive hot Weather: The *peelings* of the former are for the use of the *Gard'ner*, and *Cooper*, or rather the *splicings*.

19. We have in *England* these three *vulgar* sorts; *one* of little worth, being brittle, and very much resembling the fore-mention'd *Sally*, with reddish twigs, and more greenish, and rounder Leaves: *Another* kind there is, call'd *Perch*, of limber and green twigs, having a very slender leaf; the *third* sort is totally like the *second*, onely the twigs are not altogether so green, but *yellowish*, and near the *Popinjay*: This is the very *best* for *Use*, tough, and hardy. But the most usual names by which *Basket makers* call them about *London*, and which are all of different *species*, therefore to be Planted separately, are, the *hard Gelster*, the *Horse Gelster*, *Whyning*, or *shrivell'd Gelster*, the Black *Gelster*, in which *Suffolk* abounds. Then follow the *Golstones*, the Hard and the *Soft Golston* (brittle, and worst of all the *Golstones*) the sharp, and slender top'd *yellow Golston*; the fine *Golston*: Then is there the

Yellow

Yellow Ozier, the *Green-Ozier*, the *Snake* or *speckled Ozier*, *Swallow-tayl*, and the *Spaniard*: To these we may add amongst the number of *Oziers* (for they are both govern'd and us'd alike) the *Flanders VVillow*, which will arrive to be a large *Tree* as big as ones middle, the oftner cut the better: With these our *Coopers* tie their *Hoops*, to keep them bent. Lastly, the *white-Sallow*, which being of a Year or two growth, is us'd for *Green-work*; and if of the toughest sort, to make *quarter-Can-hoops*, of which our *Seamen* provide great quantities, *&c.*

20. These choicer sorts of *Oziers*, which are ever the *smallest*; also the *golden-yellow*, and *white*, which is preferr'd for propagation, and to *breed* of, should be Planted of *slips* of two, or three years growth a foot deep, and half a yard length, in *Mooriſh* ground, or *banks*, or else in *furrows*; so that (as some direct) the Roots may frequently reach the *water*; for *Fulminibus Salices*— though we commonly find it *rots* them, and therefore never choose to set them so deep as to sent it, and at three, or four foot distance.

21. The *Season* for *Planting* is *January*, and all *February*, though some not till mid-*February*, at two foot square; but *Cattel* being excessively liquoriſh of their *leaves* and tender *buds*, some talk of a *graffing* them out of reach upon *Sallys*, and by *this*, to advance their sprouting; but as the *work* would consume time, so have I never seen it succeed.

22. Some do also Plant *Oziers* in their *Eights* like *Quick-sets*, thick, and (neer the water) keep them not more than half a foot above ground; but then they must be diligently cleans'd from *Moss*, *Slab*, and *Ouze*, and frequently *prun'd* (especially the smaller spires) to form single shoots; at least, that few, or none grow double: These, they *head* every second year about *September*, the *Autumnal* cuttings being best for use: But generally

23. You may cut *VVithies*, *Sallys*, and *VVillows*, at any mild and gentle *season* between *leaf* and *leaf*, even in *VVinter*; but the most congruous time both to *Plant*, and to *cut* them is *Crescente Lunâ Vere*, *circa calendas Martias*; that is, about the new *Moon*, and first open weather of the early *Spring*.

24. It is in *France*, upon the *Loire*, where these *Eights* (as we call them) and Plantations of *Oziers* and *VVithies* are perfectly understood; and both *there*, and in divers other Countries beyond Seas, they raise them of the *Seeds*, contain'd in their *Juli* or *Catkins*, which they sow in *Furrows* or shallow *Trenches*, and it springs up like *Corn* in the *blade*, and come to be so tender and delicate, that they frequently mow them with a *Scyth*: This we have attempted in *England* too, even in the place where I live, but the obstinate, and unmerciful *Weed* did so confound them, that it was impossible to keep them clean with any ordinary Industry, and so they were given over: It seems either *weeds* grow not so fast in other Countries, or that the *People* (which I rather think) are more patient and laborious. The *Ozier* is of that Emolument, that

that in some places I have heard *twenty-pounds* has been given for one *Acre*; *ten* is in this part an usual price; and doubtless, it is far preferrable to the best *Corn-land*; not onely for that it needs but *once Planting*, but because it yields a constant *Crop* and revenue to the Worlds end; and is therefore in esteem of knowing Persons, valu'd in *Purchase* accordingly; consider'd likewise, how easily 'tis renew'd, when a Plant now and then fails, by but pricking in a *twig* of the next at hand, when you visie to cut them: We have in this *Parish* where I dwell, improv'd Land from lesse than *one* pound, to neer *ten* pounds the *Acre*: And when we shall reflect upon the infinite quantities of them we yearly bring out of *France* and *Flanders*, to supply the extraordinary expence of *Basket work*, *&c.* for the *Fruiterers*, *Lime-burners*, *Gardners*, *Coopers*, *Packers* up of all sorts of *Ware*, and for general *Carriage*, which seldom last above a Journey or two; I greatly admire *Gentlemen* do no more think of employing their *moist grounds* (especially, where *Tides* near fresh *Rivers* are reciprocal) in Planting and propagating *Oziers*. To omit nothing of the *Culture* of this useful *Ozier*, *Pliny* would have the place to be prepar'd by *trenching* it a foot and half deep, and in *that*, to fix the *sets* or *cuttings* of the same length at six foot interval. These (if the sets be large) will come immediately to be *Trees*; which after the first three years, are to be abated within two foot of the ground. Then, in *April*, he advises to dig about them: Of these they formerly made *Vine-props*, and one *Acre* hath been known to yield *Props* sufficient to serve a *Vineyard* of twenty five *Acres*.

25. *John Tradescant* brought a small *Ozier* from S. *Omers* in *Flanders*, which makes incomparable *Net-works*, not much inferiour to the *Indian* twig or *bent-works* which we have seen; but if we had them in greater abundance, we should haply want the *Artificers* who could imploy them.

Willow. 26. Our common *Salix* or *Willow*, is of *two* kinds, the *white* and the *black*: The *white* is also of two sorts, the *one* of a *yellowish*, the other of a *browner* Bark: The black *Willow* is Planted of *stakes* of three years growth, taken from the head of an *old Tree*, before it begins to sprout: Set them of six foot high, and ten distant. Those Woody sorts of *Willow* delight in *Meads* and *Ditch-sides*, rather *dry*, then over *wet* (for so they last longest) yet the *black* sort, and the *reddish* do sometimes well in more *boggie* grounds, and would be Planted of *Stakes* as big as on's *Leg*, cut as the other, at the length of five or six foot, and fix'd a foot or more into the earth; the *hole* made with an *Oken-stake* and beetle, or with an *Iron crow* (some use a long *Augur*) so as not to be forced *in* with too great violence: But first, the *Trunchions* should be a little slop'd at both extreams, and the biggest planted downwards: To this, if they are *soak'd* in *water* two or three dayes (after they have been siz'd for *length*, and the twigs cut off ere you plant them) it will be the better. Let this be done in *February*; the *mould* as well clos'd to them as possible, and treated as was taught in the *Poplar*. If you Plant

Plant for a kind of *VVood* or *Coppse* (for such I have seen) set them at six foot distance, or nearer, in the *Quincunx*, and be careful to take away all *Suckers* from them at three years end: You may abate the *head* half a foot from the *Trunk*, *viz.* three, or four of the lustiest *Shoots*, and the rest cut close, and *bare* them yearly, that the *three* or *four* you left, may enjoy all the *Sap*, and so those which were spared, will be gallant *Pearches* within *two* years. Arms of four years growth will yield substantial *sets* to be Planted at eight, or ten foot distance; and for the first three years well defended from the *Cattel*, who infinitely delight in their *leaves*, green or wither'd. Thus, a *Willow* may continue *twenty*, or *five* and *twenty years*, with good profit to the industrious *Planter*, being *headed* every four or five years; some have been known to *shoot* no lesse then *twelve foot* in *one* year, after which the old, rotten *Dotards* may be *fell'd*, and easily suppli'd. But if you have ground fit for whole *Coppses* of this *wood*, cast it into double *Dikes*, making every *foss* near three foot wide; two and half in depth; then leaving four foot at least of ground for the earth (because in such *Plantations* the moisture should be below the *Roots*, that they may rather see than feel the Water) and two *Tables* of *Sets* on each side, plant the *Ridges* of these *Banks* with but one single *Table*, longer, and bigger than the *Collateral*, *viz.* three, four, five or six foot high, and distant from each other about two yards. These *banks* being carefully kept *weeded* for the first two years, till the *Plants* have vanquish'd the *Grasse*, and not cut till the *third*; then lop them *traverse*, and not obliquely, at *one* foot from the ground, or somewhat more, and he will *head* to admiration: But such which are cut at three foot height, are most durable, as least soft and *aquatic*: They may also be *Graffed* 'twixt the *Bark*, or *budded*; and then they become so beautifull, as to be fit for some kind of delightful *Walks*; and this I wish were practis'd among such as are seated in low, and Marshy places, not so friendly to other *Trees*. Every *Acre* at eleven, or twelve years growth, may yield you near an *hundred Load* of *Wood*: Cut them in the *Spring* for dressing; but in the *Fall* for *Timber* and *Fuel*: I have been inform'd, that a *Gentleman* in *Essex*, has lopp'd no lesse than 2000 *yearly*, all of his own planting. It is far the sweetest of all our *English* Fuel, provided it be sound and dry, and emitting little *Smoke* is the fittest for *Ladies* Chambers; and all those *Woods* and *Twiggs* would be cut either to *Plant*, *Work* with, or *Burn* in the dryest time of the day.

27. There is a sort of *Willow* of a slender and long Leaf, resembling the smaller *Ozier*; but rising to a Tree as big as the *Sally*, full of *knots*, and of a very brittle *spray*, onely here *rehears'd* to acknowledge the *variety*.

28. There is likewise the *Garden-willow*, which produces a sweet and beautiful *flower*, fit to be admitted into our *Hortulan* ornaments, and may be set for *partitions* of *squares*; but they have no affinity with other. There is also in *Shropshire* another very *odoriferous* kind.

29. What

29. What most of the former enumerated kinds differ from the *Sallys*, is indeed not much considerable, they being generally useful for the same purposes; as *Boxes*, such as *Apothecaries* and *Goldsmiths* use; for *Cart-Saddle-trees*, yea, *Gun-stocks*, and *Half-Pikes*, *Harrows*, *Shooe-makers Lasts*, *Heels*, *Clogs* for *Pattens*, *Forks*, *Rakes*, especially the *Tooths*, which should be wedg'd with *Oak*, but let them not be cut for this when the *Sap* is stirring, because they will shrink, *Pearches*, *Hop-poles*, *Ricing* of *Kidny-beans*, and for *Supporters* to *Vines*, when our *English Vineyards* come more in request: Also for *Hurdles*, *Sieves*, *Lattices*; for the *Turner*, *Kyele-pins*, great *Town-Topps*; for *Platters*, little *Cashes* and *Vessels*; especially to preserve *Verjuices* in the best of any: *Pailes* are also made of cleft *Willow*, *Dorsers*, *Fruit-baskets*, *Canns*, *Hives* for *Bees*, *Trenchers*, *Trays*, and for polishing and whetting *Table-Knives*, the *Butler* will find it above any Wood or *Whet-stone*; also for *Coals* and *Bavin*, not forgetting the fresh *boughs*, which of all the Trees in nature, yield the most chast and coolest *Shade* in the hottest season of the day; and this Umbrage so wholesome, that *Physicians* prescribe it to *Feaverish* persons, permitting them to be plac'd even about their *Beds*, as a safe and comfortable *refrigerium*. The *wood* being preserv'd dry will dure a very long time; but that which is found wholly *putrifi'd*, and reduc'd to a loamy earth in the hollow trunks of *superannuated* Trees, is, of all other, the fittest to be mingl'd with fine *mould*, for the raising our choicest *Flowers*, such as *Anemonies*, *Ranunculus's*, *Auriculas*, and the like.

What would we more? low *Broom*, and *Sallys* wild,
Or feed the Flock, or Shepheards shade, or Field
Hedges about, or do us Hony yield.

Quid majora sequor? Salices, humilesque genistæ,
Aut illæ pecori frondem, aut pastoribus umbram
Sufficiunt, sepemque satis, & pabula melli.
Georg. 2.

30. Now by all these Plantations of the *Aquatic* Trees, it is evident, the *Lords* of Moorish *Commons*, and unprofitable *Wasts*, may learn some *Improvement*, and the neighbour *Bees* be gratified; and many Tools of *Husbandry* become much cheaper. I conclude, with the Learned *Stephanus*'s note upon these kind of *Trees*, after he has enumerated the universal benefit of the *Salictum*: *Nullius enim tutior reditus, minorisve impendii, aut tempestatis securior.*

CHAP.

CHAP. XXI.

Of Fences, Quick-sets, &c.

1. OUr main *Plantation* is now finish'd, and our *Forest* adorn'd with a just *variety* : But what is yet all this labour, but losse of *time*, and irreparable *expence*, unlesse our *young*, and (as yet) tender *Plants* be sufficiently *guarded* from all external *injuries* for, as old *Tusser*, *Fences.*

> If Cattel, or Cony may enter to Crop,
> Young Oak is in danger of losing his Top.

But with something a more polish'd *stile*, though to the same purpose, the best of Poets,

Plash Fences thy Plantation round about,	*Texendæ sepes etiam, & pecus omne tenendum est :*
And whilst yet Young, be sure keep Cattell out;	*Præcipuè, dum frons tenera, imprudensque laborum*
Severest Winters, scorching Sun infest, (lest;	*Cui, super indignas hyemes, solemque potentem,*
And Sheep, Goats, Bullocks, all young Plants mo-	*Sylvestres Uri assiduè, capreæque sequaces*
Yet neither Cold, nor the hoar rigid Frost,	*Illudunt :* Pascuntur Oves, avidæque juvencæ,
Nor Heat reflecting from the Rocky Coast,	*Frigora nec tantum cana concreta pruina,*
Like Cattel Trees, and tender Shoots confound,	*Aut gravis incumbens scopulis arentibus æstas,*
When with invenom'd Teeth the twigs they (wound.	*Quantum illi nocuere greges, durique venenum*
	Dentis, & admorso signata in stirpe cicatrix.

Georg. 2.

2. For the *reason* that so many complain of the improsperous condition of their *Wood-lands*, and *Plantations* of this kind, proceeds from this *neglect*; though (*Sheep* excepted) there is no employment whatsoever incident to the *Farmer*, which requires less *expence* to gratifie their expectations : One diligent, and skilful *Man* will govern *five hundred* Acres : But if through any accident a *Beast* shall break into his *Masters* Field; or the wicked *Hunters* make a Gap for his *Dogs* and *Horses*, what a clamor is there made for the disturbance of a years *Crop* at most in a little *Corn?* whiles abandoning his young *Woods* all this time, and perhaps many years, to the venomous bitings and treading of *Cattel*, and other like injuries (for want of due care) the detriment is many times *irreparable* : Young *Trees* once cropp'd hardly ever *recovering* : It is the *bane* of all our most hopeful *Timber*.

3. But shall I provoke you by an *instance?* A *Kins-man* of mine has a *Wood* of more than 60 *years* standing; it was, before he purchas'd it, expos'd and abandon'd to the *Cattel* for divers years : some of the outward skirts were nothing save *shrubs* and miserable

starvlings; yet still the place had a disposition to grow *woody*; but by this neglect continually suppress'd. The industrious *Gentleman* has *Fenced* in some *Acres* of this, and cut all close to the ground; it is come in eight or nine years, to be better worth than the *Wood* of *sixty*; and will (in time) prove most incomparable *Timber*, whiles the other part so many years advanc'd, shall never recover; and all *this* from no other *cause*, than preserving it *fenc'd*: Judge then by *this*, how our *Woods* come to be so decried: Are five hundred *Sheep* worthy the care of a *Shepherd*? and are not *five thousand* Oaks worth the *fencing*, and the inspection of a *Hayward*?

And shall men doubt to Plant, and careful be? — *Et dubitant homines serere, atque impendere curam?* Georg. 2.

Let us therefore *shut* up what we have thus laboriously *Planted*, with some good *Quick-set hedge*. Which,

——All Countreys bear, in every ground
As Denizen, or Enter-loper found:
From Gardens and till'd fields expell'd, yet *there*
On the *extreams* stands up, and claims a share.
Nor *Mastiff-dog*, nor *Pike-man* can be found
A better Fence to the enclosed Ground.
Such breed the rough and hardy *Cantons* rear,
And into all adjacent Lands prefer,
Tough rugged Churles; and for the Battel fit,
Who Courts and States with Complement or Wit
To civilize nor to instruct pretend;
But with stout faithful service to defend.
This *Tyrants* know full well, nor more confide
On *Guards* that serve lesse for Defence than Pride:
Their Persons safe they do not judge amisse,
And *Realms* committed to their *Guard* of *Swisse*.

——*Omne solum natale est, intrat ubique*
Ardelio: illa quidem cultûs excluditur agris
Plerumque, atque hortis; sed circumsepit utrosque
Atque omnes adytus servat fidissima custos,
Utilior latrante Cane, armatoque Priapo.
Aspera frigoribus saxisque Helvetia tales
Educat, & peregis terras emittit in omnes
Enormes durósque viros, sed fortia bello
Pectora; non illi cultu, non moribus Aulæ,
Atque Urbes decorare valent, sed atrasque fideli
Defendunt opera; nec in, gens cauta, Tyranni,
Præponunt speciosa magis, multúmque sonora
Præsidia; his certi vitam tutantur opesque, &c.

Coulei *pl. l. 6.*

For so the ingenious *Poet* has metamorphos'd him, and I could not withstand him.

Quick-sets. 4. The *Hei-thorne*, and indeed the very best of common *hedges*, is either rais'd of *Seeds* or *Plants*; but then it must not be with *despair*, because sometimes you do not see them peep the *first* year; for the *Haw*, and many other *Seeds*, being invested with a very hard *Integument*, will now and then suffer *imprisonment* two whole years under the earth; and impatience of this does often frustrate the expectation of the *resurrection* of divers *seeds* of this nature; so as we frequently *dig* up, and disturb the *beds* where they have been *sown*, in *despair*, before they have *gone* their *full time*; which is also the reason of a very *popular* mistake in other *Seeds*: Especially, that of the *Holly*, concerning which there goes a *tradition*; that they will not sprout till they be pass'd through the *Maw* of a *Thrush*; whence the saying, *Turdus excitium suum cacat* (alluding to the *Viscus* made thereof, not the *Misleto* of *Oak*) but this is an *errour*, as I am able to testifie on *experience*; they come up very well of the *Berries*, and with *patience*; for (as I affirm'd) they will *sleep* sometimes two entire years in their *Graves*; as will also the

the seeds of *Yew*, *Sloes*, *Phillyrea angustifolia*, and sundry *others*, whose *shells* are very *hard* about the small *kernels*; but which is wonderfully facilitated, by being (as we directed) prepar'd in *beds*, and *Magazines* of *Earth* or *Sand* for a competent time, and then committed to the ground before the *full* in *March*, by which *season* they will be *chitting*, and speedily take *Root*: Others bury them deep in the ground all *Winter*, and sow them in *February*: And thus I have been told of a *Gentleman* who has considerably improv'd his *Revenue*, by sowing *Haws* only, and raising *Nurseries* of *Quick-sets*, which he sells by the *hundred* far and neer: This is a commendable *industry*; any neglected corners of ground will fit this *Plantation*.

5. But *Columella* has another expedient for the raising of our *spinetum*, by rubbing the now mature *Hips* and *Haws* into the crevices of *Bass ropes*, and then burying them in a *Trench*: Whether way you attempt it, they must (so soon as they peep, and as long as they require it) be sedulously cleans'd of the *weeds*, which, if in beds for *transplantation*, had need be at the least three or four *year*; by which time even your *seedlings* will be of *stature* fit to *remove*; for I do by no means approve of the vulgar *præmature* Planting of *Sets*, as is generally us'd throughout *England*; which is to take such onely as are the very *smallest*, and so to crowd them into three or four *files*, which are both egregious *mistakes*.

6. Whereas it is found by constant experience, that *Plants* as big as ones *thumb*, set in the posture, and at the distance which we spake of in the *Horn-beam*; that is, almost *perpendicular* (not altogether, because the *Rain* should not get in 'twixt the *Rind* and *wood*) and single, or at most not exceeding a double *row*, do prosper infinitely, and much out-strip the densest, and closest ranges of our trifling *Sets*, which make but weak *shoots*, and whose roots do but hinder each other, and for being couch'd in that *posture* on the sides of *Banks* and *Fences* (especially where the earth is not very tenacious) are bared of the *mould* which should entertain them, by that time the *Rains* and *Storms* of one *Winter*, have passed over them. In *Holland*, and *Flanders* (where they have the goodliest *Hedges* of this kind about the *Counter-scarps* of their invincible *fortifications*, to the great security of their *Musketiers* upon occasion) they Plant them according to my description, and raise *Fences* so speedily, and so impenetrable, that our *best* are not to enter into the comparison. Yet, that I may not be wanting to direct such as either affect the other way, or whose *Grounds* may require some *Bank* of *Earth*, as ordinarily the verges of *Coppses*, and other Inclosures do: You shall by *line* cast up your *fosse* of about three foot broad, and about the same depth, provided your mould hold it; beginning first to turn the *turf*, upon which, be careful to lay some of the best *Earth* to bed your *Quick* in, and there *lay*, or *set* the *Plants*; *two* in a foot space is sufficient; being diligent to procure such as are *fresh* gathered, *streight*, *smooth*, and well *rooted*; adding now and then, at equal spaces of twenty or thirty foot, a young

Oakling or *Elme*-sucker, *Ash* or the like, which will come in time to be ornamental *Standards*, and good *Timber*: If you will needs multiply your rowes, a *foot* or somewhat lesse: Above that, upon more congested mould, plant another ranke of *sets*, so as to point just in the middle of the *vacuities* of the *first*, which I conceive enough: This is but for the single *Fossé*; but if you would fortifie it to the purpose, do as much on the other side, of the same *depth*, *height*, and *planting*; and then last of all, cap the top in *Pyramis* with the worst, or bottom of the *Ditch*: Some, if the *mould* be good, plant a row or two on the Edge, or very *crest* of the *mound*, which ought to be a little flatned: Here also many set their *dry-Hedge*, to defend, and shade their under-plantation, and I cannot reprove it: But great care is to be had in this *work*, that the main bank be well *footed*, and not made with too suddain a declivity, which is subject to fall-in after *frosts* and *wet* weather; and this is good husbandry for *moyst* grounds; but where the Land lyes *high*, and is hot and *gravelly*, I prefer the lower fencing; which, though *even* with the *arêa* it self, may be protected with *stakes* and a dry hedge, the distance competent, and to very good purposes of educating more frequent *Timber* amongst the rowes.

7. Your *Hedge* being yet *Young*, should be constantly *weeded*, (of *Brambles* especially, the great *Dock*, and *Thistle*, &c.) though some admit not of this work after *Michaelmas*, for *Reasons* that I approve not: It has been the practice of *Herefordshire*, in the plantation of *Quick-set-hedges*, to plant a *Crab-stock* at every twenty-foot distance; and this they observe so *Religiously*, as if they had been under some rigorous *Statute* requiring it: But by this means, they were provided in a short time with all advantages for the *graffing* of *Fruit* amongst them, which does highly recompense their industry. Some cut their *Sets* at *three* years growth even to the very ground, and find that in a *year* or *two*, it will have shot, as much as in *seven*, had it been let alone.

8. When your *Hedge* is now neer six years stature, *plash* it about *February* or *October*; but this is the work of a very dextrous and skilful *Husbandman*; and for which our honest Country-man M. *Markam* gives excellent directions; only I approve not so well of his *deep* cutting, if it be possible to bend it, having suffered in some thing of that kind: It is almost incredible to what perfection some have laid these *Hedges*, by the *rural* way of *plashing*, better than by *clipping*; yet may both be used for *ornament*, as where they are planted about our *Garden-fences*, and *fields* neer the *Mansion*. In *Scotland*, by tying the young *shoots* with *bands* of *hay*, they make the *stems* grow so very close together, as that it encloseth *Rabbets* in *Warrens* instead of *pales*.

9. And now since I did mention it, and that most I find do greatly affect the vulgar way of *Quicking* (that this our *Discourse* be in nothing deficient) we will in brief give it you again after *Geo. Markams* description, because it is the best and most accurate, although much resembling our former *direction*, of which it seems

but

but a *Repetition*, 'till he comes to the *plashing*. In a Ground which is more *dry* then *wet* (for *watry* places it abhors) plant your *Quick* thus: Let the first row of *Sets* be placed in a *trench* of about half a foot deep, *even* with the top of your *ditch*, in somewhat a sloping, or inclining posture: Then, having rais'd your *bank* neer a foot upon them, plant another *row*, so as their tops may just peep out over the middle of the *spaces* of your *first* row: These cover'd again to the height or thickness of the other, place a third *rank* opposite to the *first*, and then finish your bank to its intended height. The distances of the *plants* would not be above one *foot*; and the *season* to do the work in, may be from the entry of *February*, till the end of *March*; or else in *September*, to the beginning of *December*. When this is finish'd, you must guard both the top of your *Bank*, and outmost verge of your *Ditch*, with a sufficient *dry-hedge* interwoven from *stake* to *stake* into the earth (which commonly they do on the bank) to secure your *Quick* from the spoil of *Cattle*. And then being careful to repair such as decay, or do not spring, by suppling the dead, and trimming the rest; you shall after three *years* growth, sprinkle some *Timber-trees* amongst them; such as *Oak*, *Beech*, *Ash*, *Maple*, *Fruit*, or the like; which being drawn young out of your *Nurseries*, may be very easily inserted. But that which we affirm'd to require the greatest dexterity in this work, is; the artificial *plashing* of our *Hedge* when it is now arriv'd to a *six* or *seven* years head; though some stay till the *tenth* or longer. In *February* therefore, or *October*, with a very sharp *hand-bill* cut away all superfluous *sprays* and *straglers* which may hinder your progress, and are useless. Then, searching out the principal *stems*, with a keen and light *Hatchet*, cut them *slant-wise* close to the *Ground*, about three quarters through, or rather, so far onely, as till you can make them comply handsomely, which is your best direction, and so lay it from you *sloping* as you go, folding *in* the lesser *branches* which spring from them; and ever within a five, or six foot distance, where you find an upright *set* (cutting *off* only the top to the height of your intended *hedge*) let it stand as a *stake* to fortifie your work, and to receive the *twinings* of those branches about it. Lastly, at the *top* (which would be about *five foot* above ground) take the longest, most slender and flexible *twigs* which you reserved (and being cut as the former where need requires) bind *in* the extremities of all the rest, and thus your *work* is finish'd: This being done very close, and thick, makes an impregnable *Hedge*, in few years; for it may be repeated as you see occasion; and what you so cut away, will help to make your *dry-hedges* for your young *Plantations*, or be profitable for the *Oven*, and make good *Bavin*. For *stakes* in this work, *Oake* is to be preferr'd, though some will use *Elder*, or the *Black-Thorn* droven well *in* at every *yard* of interval; and even your *plash'd-hedges* need some small *thorns* to be lay'd over to protect the *Spring* from *Cattel* and *Sheep*, 'till they are somewhat fortified; and the doubler the *winding* is lodg'd, the better; which should be beaten, and forced down

down together with the *stakes*, as equally as may be. Note, that in sloping your *Windings*, if it be too low done (as very usually) it frequently mortifies the tops; therefore, it ought to be so bent, as it may not impead the mounting of the *Sap*: If the *plash* be of a great, and extraordinary *age*, wind it at the neather boughs all together, and cutting the *sets* as directed, permit it rather to hang downwards a little, than rise too forwards; and then twist the branches into the work, leaving a set free and unconstrain'd at every *yard* space; besides such as will serve for *stakes*, abated to about five-foot-length (which is a competent stature for an *Hedge*) and so let it stand. One shall often find in this work, especially in *Old* neglected *Hedges*, some great *Trees*, or *stubs*, that commonly make *gaps* for *Cattel*: Such, should be cut so neer the Earth, as 'till you can lay them thwart, that the *top* of one, may rest on the *root*, or *stub* of the other, as far as they extend, stopping the *cavities* with its boughs and branches; and thus *Hedges* which seem to consist but onely of *Scrubby-Trees* and *stumps*, may be reduc'd to a tollerable *Fence*. We have been the longer on these *descriptions*, because it is of main importance, and that so few *Husbandmen* are perfectly skil'd in it.

10. The *Roots* of an Old *Thorne* is excellent both for *Boxes* and *Combs*, and is curiously and naturally wrought: I have read, that they made *ribs* to some small *Boates* or *Vessels* with the *White-Thorn*. The *Black-Crab* rightly season'd and treated, is famous for *Walking-staves*, and if over-grown us'd in *Mill-work*. Here we owe due *Elogy* to the Industry of that honourable Person my *Lord Ashley*, who has taught us to make such Enclosures of *Crab-stocks* onely, planted close to one another, as there is nothing more impregnable and becoming; or you may sowe *Sider-kernels* in a *rill*, and fence it for a while with a double *dry Hedge*, not onely for a suddain and beautiful, but a very profitable *Incloſure*; because, amongst other benefits, they will yield you *Sider-fruit* in abundance: But in *Devonshire*, they build two *walls* with their *stones*, setting them edgeways, *two*, and then *one* between; and so as it rises, fill the intervall or *Cofer* with Earth (the *breadth* and *height* as you please) and continuing the *stone-work*, and *filling*, and as you work beating in the *stones* flat to the sides, which causes them to stick everlastingly: This is absolutely the neatest, most saving, and profitable *Fencing* imaginable, where *slaty stones* are in any abundance; and it becomes not onely the most *secure* to the *Lands*, but the best for *Cattel* to lye warme under the *Walls*; when other *Hedges*, (be they never so thick) admit of some cold *winds* in Winter time that the leaves are of: Upon these *Banks* they plant not onely *Quick sets*, but even *Timber-Trees* which exceedingly thrive, being out of all danger.

11. The *Pyracanth*, *Paliurus*, and like pretioser sorts of *Thorne* might easily be propagated into plenty sufficient to store even these vulgar *Uses* were *Men* industrious; and then how beautiful, and sweet would the *environs* of our *Fields* be? for there are none of the *spinous shrubs* more hardy, nor fitter for our defence.

Thus

Thus might *Berberies* now and then be also inserted among our *hedges*, which, with the *Hips*, *Haws*, and *Cornel-berries*, do well in *light lands*, and would rather be planted to the *South* than *North* or *West*, as usually we observe them.

13. Some (as we noted) mingle their very *hedges* with *Oaklings*, *Ash*, and *Fruit trees* sown, or planted, and 'tis a laudable improvement; though others do rather recommend to us *Sets* of all *one* sort, and will not so much as admit of the *Black-Thorne* to be mingled with the *White*, because of their unequal progress; and indeed, *Timber-trees* set in the *Hedge* (though *contemporaries* with it) do frequently wear it out; and therefore I should rather incourage such *Plantations* to be at some *Yards* neer the *Verges*, than *perpendicularly* in them.

14. In *Cornwall* they secure their *Lands* and Woods with high *Mounds*, and on them they plant *Acorns*, whose roots bind in the looser mould, and so form a double, and most durable *Fence*, incircling the *Fields* with a *Coronet* of *Trees*. They do likewise (and that with great commendation) make *hedges* of our *Genista Spinosa*, prickly *Furzes*, of which they have a *taller* sort, such as the *French* imploy for the same purpose in *Bretaigne*, where they are incomparable *husbands*. *Furzes.*

15. It is to be *sown* (which is best) or *planted* of the *roots* in a furrow: If sown, *weeded* till it be strong: both *Tonsile*, and to be diligently *clip'd*, which will render it very thick, an excellent and beautiful *hedge*: Otherwise permitted to grow at large, 'twill yield very good *Fagot*: It is likewise admirable *Covert* for *wilde-fowle*, and will be made to grow even in moyst, as well as dry places: The young, and tender tops of *Furzes*, being a little bruis'd, and given to a lean sickly *Horse*, will strangely recover and plump him. Thus, in some places, they *sow* in *barren grounds* (when they lay them down) the last *crop* with this *seed*, and so let them remain till they break them up again, and during that interim, reap considerable advantage: Would you believe (writes a worthy *Correspondent* of mine) that in *Herefordshire* (famous for plenty of *wood*) their *Thickets* of *Furzes* (*viz.* the *vulgar*) should yield them more *profit*, then a like quantity of the best *Wheat* land of *England?* for such is theirs, if this be question'd, the *Scene* is within a mile of *Hereford*, and proved by *anniversary* experience, in the *Lands*, as I take it, of a *Gentleman* who is now one of the *Burgesses* for that *City*. And in *Devonshire* (the *seat* of the best *Husbands* in the *World*) they sow on their worst *Land* (well *plow'd*) the *seeds* of the rankest *Furzes*, which in four or five years becomes a rich *Wood*: no provender (as we say) makes *Horses* so hardy, as the young *tops* of these *Furzes*; no other *Wood* so thick, nor more excellent *Fuel*; and for some purposes also, yielding them a kind of *Timber* to their more humble *buildings*, and a great refuge for *Fowl* and other *Game*: I am assur'd, in *Bretaigne* 'tis sometimes sown no lesse then *twelve yards* thick, for a speedy, profitable, and impenetrable *Mound*: If we imitated this *husbandry* in the barren places

places of *Surrey*, and other parts of this *Nation*, we might exceedingly spare our *woods*; and I have bought the best sort of *French seed* at the shops in *London*. It seems that in the more *Eastern* parts of *Germany*, and especially in *Poland*, this vulgar trifle, and even our common *Broom* is so rare, that they have desired the *seeds* of them out of *England*, and preserve them with extraordinary care in their best *Gardens*; this I learn out of our *Johnsons Herbal*; by which we may consider, that what is reputed a *curse* and a cumber in some places, is esteem'd the ornament and blessing of another: But we shall not need go so far for this, since both *Beech* and *Birch* are almost as great strangers in many parts of this *Nation*, particularly *Northampton* and *Oxfordshire*.

Broom. 15. This puts me in mind of the *Broom*; another *improvement* for *Barren* grounds, and saver of more substantial *Fuel*: It may be sown *English*, or (what is more sweet, and beautiful) the *Spanish*, with equal success. In the Western parts of *France*, and *Cornwall*, it grows with us to an incredible height (however our *Poet* give it the *epithete* of *humilis*) and so it seems they had it of old, as appears by *Gratius* his *Genistæ Altinates*, with which (as he affirms) they us'd to make *staves* for their *Spears*, and hunting *Darts*.

Elder. 16. Lastly, a considerable *Fence* may be made of the *Elder*, set of reasonable lusty *trunchions*; much like the *Willow*, and (as I have seen them maintain'd) laid with great curiosity, and far excelling those extravagant plantations of them about *London*, where the *lops* are permitted to grow without due and skilful laying. There is a sort of *Elder* which has hardly any *Pith*; this makes exceeding stout *Fences*, and the *Timber* very useful for *Cogs* of *Mills*, Butchers *Skewers*, and such tough employments. Old trees do in time become firm, and close up the *hollowness* to an almost invisible *pith*. But if the *Medicinal* properties of the *Leaves*, *Bark*, *Berries*, *&c.* were throughly known, I cannot tell what our *Country-man* could aile for which he might not fetch a *Remedy* from every *Hedge*, either for *Sickness* or *Wound*: The inner *Barke* of *Elder*, or, in season, the *Buds*, boyld in *Water grewel* for a *Break-fast*, has effected wonders in the *Feaver*; and the decoction is admirable to asswage *Inflammations* and *tetrous* humors, and especially the *Scorbut*: But an *Extract* or *Therica* may be compos'd of the *Berries*, which is not onely efficacious to erradicate this *Epidemical* inconvenience, and greatly to assist *Longævity* (for famous is the story of *Næander*) but is a kind of *Catholicon* against all *Infirmities* whatever: The *Water* of the leaves and *Berries* are approved in the *Dropsy*, every part of the *Tree* is useful: The *Oyntment* made with the young *buds* and *leaves* in *May* with *Butter*, is most soveraine for *Aches*, shrunk *sinnues*, &c. And lesse than this could I not say (with the leave of the charitable *Physitian*) to gratifie our poor *Wood-man*; and yet when I have say'd all this, I do by no means commend the *sent* of it, which is very noxious to the *Ayre*, and therefore, though I do not undertake that all things which sweeten the *Ayre* are salubrious, nor all ill savors pernicious; yet, as not for its beauty, so

neither

neither for its smell, would I plant *Elder* or much *Box* neer my Habitation: The *Elder* does likewise produce a certain green *Fly*, almost invisible, which is exceedingly troublesome, and whose sting is plainly venomous, smarts vehemently, and gathers a fiery redness where it ataques.

19. There is a *Shrub* call'd the *Spindle-Tree*, *Evonymus* or *Fusanum*, commonly growing in our *Hedges*, which bears a very hard *wood*, of which they sometimes made *Bowes* for *Viols*, and the *Inlayer* us'd it for its colour, and *Instrument*-makers for *Toothing* of *Organs* and *Virginal-keys*, *Tooth-pickers*, &c. What we else do with it I know not, save that, according with its name abroad, they make *spindles* with it. Here might come in (or be nam'd at least) the *Wild-Cornel*, good to make *Mill-Cogs*, *Pestles*, *Bobins* for *Bonelace*, &c. Lastly, the *Viburnum*, or *Way-faring tree*, growing also plentifully in every corner, makes the most plyant and best *bands* to *Fagot* with. *Evonymus.* *Cornel.*

20. The *American Tucca* is a *hardier* plant then we take it to be; for it will suffer our sharpest *Winter*, as I have seen by experience, without that trouble, and care of setting it in *Cases* in our *Conservatories* for *hyemation*; such as have beheld it in *Flower* (which is not indeed till it be of some age) must needs admire the beauty of it; and it being easily multiplied, why should it not make one of the best, and most ornamental *Fences* in the world for our *Gardens*, with its natural *palisados*, as well as the more tender, and impatient of moisture the *Aloes* does for their *Vineyards* in *Languedoc*, *&c.* but *We* believe nothing *improvable*, save what our *Grand-fathers* taught us. Finally, let trial likewise be made of that *Thorn* mention'd by *Cap. Liggon* in his *History* of *Barbados*; whether it would not be made grow amongst us, and prove as convenient for *fences* as *there*; the *Seeds* or *Sets* transported to us with due care. And thus, having accomplish'd what (by your *Commands*) I had to offer concerning the *propagation* of the more *Solid*, *Material*, and useful *Trees*, as well the *Dry*, as *Aquatical*; and to the best of my *talent* fenc'd our *Plantation* in, I should here *conclude*, and set a *bound* likewise to my *Discourse*, by making an *Apologie* for the many *errours* and impertinencies of it; did not the *zeal*, and ambition of this *Illustrious Society* to promote and improve all *Attempts* which may concern the *Publick utility* or *Ornament*, perswade *Me*, that what I am adding for the farther encouragement to the *planting* of some other *useful* (though less *Vulgar*) Trees, will at least obtain your *pardon*, if it miss of your *Approbation*. *Yucca.*

21. To discourse in this *stile* of all such *Fruit-trees* as would prove of greatest *emolument* to the whole *Nation*, were to design a just *Volume*; and there are *directions* already so many, and so accurately deliver'd and *publish'd* (but which cannot be affirm'd of any of the former *Classes* of *Forest-trees* and other remarkes, at the least to my poor knowledge and research) that it would be needless to *Repeat*. *Fruit-Trees.*

22. I do only wish (upon the prospect, and meditation of the universal *Benefit*) that every *person* whatsoever, worth *ten* pounds

per annum, within his *Majesties* Dominions, were by some indispensable *Statute* oblig'd to *plant* his *Hedg-rows* with the best, and most useful *kinds* of them; especially, in such places of the *Nation*, as being the more in-land *Counties*, and remote from the *Seas* and Navigable *Rivers*, might the better be excus'd from the planting of *Timber*, to the *proportion* of those who are more happily and commodiously *situated* for the *transportation* of it.

22. Undoubtedly, if this course were taken effectually, a very *considerable* part both of the *Meat* and *Drink* which is spent to our prejudice, might be saved by the *Country-people*, even out of the *Hedges* and *Mounds*, which would afford them not only the *pleasure* and *profit* of their delicious *Fruit*, but such abundance of *Sider* and *Perry*, as should suffice them to *drink* of one of the most *wholesom* and excellent *Beverages* in the *World*. Old *Gerard* did long since alledg us an *example* worthy to be pursu'd; *I have seen* (saith he, speaking of *Apple-Trees*, *lib.* 3. *cap.* 101.) *in the* Pastures *and* Hedg-rows *about the Grounds of a Worshipful* Gentleman *dwelling two miles from* Hereford, *call'd Mr.* Roger Bodnome, *so many* Trees *of all* sorts, *that the* Servants *drink for the most part no other drink but that which is made of* Apples: *The quantity is such, that by the report of the* Gentleman *himself, the* Parson *hath for* Tythe *many Hogsheads of* Sider: *The* Hogs *are fed with the fallings of them, which are so many, that they make choice of those* Apples *they do eat, who will not taste of any but of the best. An* Example *doubtless to be followed of* Gentlemen *that have* Land *and* Living; *but* Envy *saith, The* Poor *will break down our* Hedges, *and we shall have the least part of the* Fruit; *but forward in the Name of God,* Graff, Set, Plant, *and nourish up* Trees *in every corner of your Ground; the* labour *is small, the* cost *is nothing, the* commodity *is great; your selves shall have* plenty, *the* poor *shall have somewhat in time of want to relieve their necessity, and* God *shall reward your good minds and diligence.* Thus far honest *Gerard*. And in truth, with how small a *charge*, and infinite *pleasure* this were to be effected, every one that is *Patron* of a little *Nursery* can easily *calculate*: But by this *Expedient*, many thousands of *Acres*, sow'd now yearly with *Barley*, might be cultivated for *Wheat*, or converted into *Pasture* to the increase of *Corn*, and *Cattel*: Besides, the *Timber* which the *Pear-tree*, *Black-Cherry* afford, and many thorny *plums* (which are best for grain, colour and glosse) afford, comparable (for divers curious *Uses*) with any we have enumerated. The *Black-Cherry*-Wood grows sometimes to that bulke, as is fit to make *stooles* with, *Cabinets*, *Tables*, especially the *redder* sort, which will polish well; also *Pipes*, and *Musical Instruments*, the very *bark* employ'd for *Bee-Hyves*: But of this I am to render a more ample *Accompt* in the *Appendix* to this *Discourse*. I would farther recommend the more frequent planting, and propagation of *Fir*, *Pine-trees*, and some other beneficial *Materials* both for *Ornament* and *profit*; especially, since we find by *experience*, they thrive so well, where they are cultivated for *Curiosity* only.

CHAP.

CHAP. XXII.

Of the Fir, Pine, Pinaster, Pitch-tree, *&c.*

1. *Abies, Pinus, Pinaster, Picea,* &c. are all of them easily rais'd of the *Kernels*, and *Nuts*, which may be gotten out of their *Cones* and *Clogs*, by exposing them a little before the *fire*, or in *warm water*, till they begin to gape, and are ready to deliver themselves of their numerous burthen. *Fir.*

2. There are of the *Fir* two principal *species*; the *Male* which is the bigger Tree most beautiful and tapering, and of a harder wood; the *Female*, which is much the softer, and whiter. Though *Whitenesse* be not the best *character*; that which knowing *Workemen* call the *Dram*, and that comes to us from *Bergen*, *Swinsound*, *Mosse*, *Longlound*, *Dranton*, &c. long, strait, clear, and of a yellow more *Cedrie* colour, is esteemed much before the *White* for *flooring* and *wainscot*; For *Masts*, &c. Those of *Prussia*, which we call *Spruse*, and *Norway* (especially from *Gottenberg*) are the best; unlesse we had more commerce of them from our *Plantations* in *New-England*, which are preferrable to any of them. In the *Scottish High-lands* are *Trees* of wonderful altitude (though not altogether so tall, thick and fine as the former) which grow upon places so unaccessable, and far from the *Sea*, that (as one says) they seem to be planted of *God* on purpose for *Nurseries* of *Seed*, and monitors to our *Industry*, reserved with other Blessings, to be discover'd in our days amongst the new-invented *Improvements* of *Husbandry*, not known to our *Southern* people of this *Nation*, &c. Did we consider the pains they take to bring them out of the *Alps*, we should lesse stick at the difficulty of transporting them from the utmost parts of *Scotland*. To the former sorts we may add the *Esterund* Firs, *Tonsberry*, *Fredrick-stad*, *Hellerone*, *Holmstrand*, *Landifer*, *Stavenger*, *Lawrwat*, &c. They may be sown in *beds*, or *cases*, at any time during *March*; and when they *peep*, carefully defended with *Furzes*, or the like *fence*, from the rapacious *birds*, which are very apt to pull them up, by taking hold of that little *infecund* part of the *seed*, which they commonly bear upon their tops: The *Beds* wherein you sow them had need be shelter'd from the Southern *Aspects* with some *skreen* of *Reed*, or thick *hedge*: Sow them in shallow *rills*, not above half-inch deep, and cover them with fine light mould: Being risen a finger in height, establish their weak *stalks*, by siefting some more earth about them; especially the *Pines*, which being more *top-heavy*, are more apt to swag. When

they are of two, or three years growth, you may *transplant* them where you please; and when they have gotten good root, they will make prodigious shoots; but not for the three, or four first years comparatively. They will grow both in moyst, or barren *Gravel*, and poor ground, so it be not over *sandy* and light; but before sowing (I mean *here* for large designes) turn it up a foot deep, sowing or setting your *Seeds* an hand distance, and riddle Earth upon them; In five or six weeks they will peep: When you *transplant*, water them well before, and cut the *clod* out about the *root* as you do *Melons* out of the *Hot-bed*, which knead close to them like an *Egg*: Thus they may be sent safely many *miles*, but the *top* must neither be bruised, much lesse cut, which would *dwarfe* it for ever.

3. The best time to transplant, were in the beginning of *April*; they would thrive mainly in a stiff hungry *Clay*; but by no means in over light, or rich *Soyle*: Fill the holes therefore with such barren *Earth*, if your ground be improper of it self; and if the *Clay* be too stiff and untractable, with a little *sand*, removing with as much *Earth* about the *roots* as is possible, though the *Fir* will better endure a naked *transplantation*, than the *Pine*: You may likewise *sow* in such earth about *February*, they will make a shoot the very *first* year of an *Inch*; *next* an handful, the *third* year three foot, and thence forward, above a yard *annually*. A *Northern Gentleman*, who has oblig'd me with this *processe* upon his great *Experience*, assures me, that there are trees planted in *Northumberland*, which are in few years grown to the magnitude of *Ship-masts*; and from all has been sayd, deduces these *Incouragements*; 1. The facility of their *propagation*, 2. The nature of their *growth*, which is to affect places where nothing else will thrive: 3. Their *uniformity* and beauty, 4. Their perpetual *Verdure*; 5. Their *sweetnesse*, 6. Their *Fruitfulness*, affording *seed*, *gum*, *fuel*, and *timber* of all other woods the most useful and easy to *work*, &c. All which highly recommend it as an excellent *Improvement* of *Husbandry*, fit to be enjoyn'd by some solemn *Edict* to the *Inhabitants* of this our *Island*, that we may have *masts*, and those other *materials* of our own growth.

Pines. 4. The *Pine* (of which are reckon'd no lesse then *ten* several sorts, preferring the *Domestic* or *Sative* for the fuller growth) is likewise of both *Sexes*, whereof the *Male* growing lower, hath its *wood* more knotty and rude than the *Female*. They would be gather'd in *June*, before they gape, yet having hung *two* years (for there will be always some *ripe*, and some *green* on the same *Tree*) preserve them in their *nuts*, in *Sand*, as you treat *Akorns*, &c. 'till the season invite, and then *set*, or *sow* them in *Ground* which is cultivated like the *Fir*, in most respects; only you may bury the *Nuts* a little deeper. By a *friend* of mine they were rolled in a fine *compost* made of *Sheeps-dung*, and scatter'd in *February*, and this way never fail'd *Fir* and *Pine*; they came to be above *Inch* high by *May*; and a *Spanish Author* tels us, that *macerated* five days in a *childs urine*, and three days in *water*, is of wonderful effect; This

were

were an expeditious *processe* for great *Plantations*; unless you would rather set the *Pine* as they do *Pease*; but at wider distances, that when there is occasion of removal, they might be taken up with *earth* and all, I say, *taken up*, and not remov'd by *Evulsion*; because they are (of all other *Trees*) the most obnoxious to miscarry without this caution; and therefore it were much better (where the *Nuts* might be commodiously set, and *defended*) never to *remove* them at all, it gives this *Tree* so considerable a check. The safest course of all, were to set the *Nuts* in an *Earthen-pot*, and in frosty weather, shewing it a little to the *fire*, the intire *Clod* will come out with them, which are to be reserved, and set in the *naked* Earth, in convenient and fit *holes*, so soon as the *thaw* is universal: Some commend the strewing a few *Oats* at the bottom of the *fosses* or *pits* in which you transplant the naked *roots*, for a great promotement of their taking; and that it will cause them to shoot more in *one* year than in *three*; but to this I have already spoken.

5. I am assur'd (by a person most worthy of credit) that in the *Territory* of *Alzey* (a Country in *Germany*, where they were miserably distressed for *Wood*, which they had so destroy'd as that they were reduced to make use of *Straw* for their best *Fuel*) a very large *Tract* being newly plowed, but the *Warrs* surprizing them, not suffer'd to sow, there sprung up the next year a whole Forest of *Pine-trees*, of which sort of *Wood* there was none at all within lesse then *fourscore* miles; so as 'tis verily conjectur'd by some, they might be wafted thither from the Country of *Westrasia*, which is the neerest part to that where they grow: If this be true, we are no more to wonder, how, when our *Oak-woods* are grubb'd up, *Beech*, and Trees of *other kinds*, have frequently succeeded them: What some impetuous *Winds* have done in this nature, I could produce instances almost *miraculous*: I shall say nothing of the opinion of our Master *Varro*, and the learned *Theophrastus*, who were both of a faith, that the *seeds* of *Plants* drop'd out of the *Air*: *Pliny* in his 16. *Book*, *Chap.* 33. upon discourse of the *Cretan Cypress*, attributes much to the *indoles* and nature of the *soil*, *virtue* of the *Climate*, and *Impressions* of the *Air*: And indeed it is very strange, what is affirm'd of that *Pitchy-rain*, reported to have fallen about *Cyrene*, the year 430. U. C. after which, in a short time, sprung up a whole *wood* of the Trees of *Laserpitium*, producing a precious *Gum* not much inferiour to *Benzoin*, if at least the *story* be warrantable: But of these *Aerial irradiations*, various *conceptions*, and *æquivocal* productions without *seed*, *&c.* upon another occasion, if life and leisure permit me to finish what has been long under the hand and file, to gratifie our *Horticultores*; this present *Treatise* being but an imperfect *limb* of that more ample *Work*.

6. In transplanting of these *Coniferous* Trees, which are generally *Resinaceous*, *viz.* *Fir*, *Pine*, *Larix*, *Cedar*, and which have but thin and single *Roots*, you must never diminish their *heads*, nor be at all busie with their *roots*, which pierce deep, and is all their foundation, unless

less you find any of them bruised, or much broken; therefore such down-right *Roots* as you may be forc'd to cut off, it were safe to *sear* with an *hot Iron*, and prevent the danger of bleeding, to which they are obnoxious even to destruction, though unseen and unheeded: Neither may you *disbranch* them, but with great caution, as about *March*, or before, or else in *September*, and *then* 'tis best, to prune up the side-*branches* close to the *Trunk*, cutting off all that are above a *year* old; if you suffer them too long, they grow too big, and the *cicatrice* will be more apt to spend the *Tree* in *gumme*; upon which accident I advise you to rub over their *wounds* with a mixture of *Cow-dung*; the neglect of this cost me dear, so apt are they to spend their *Gum.* Some advise us to break the shells of *Pines* to facilitate their *delivery*, and I have essay'd it, but to my losse; *Nature* does *obstetricate*, and do that office of her self, when it is the proper season; neither does this preparation at all prevent those which are so buried, whiles their hard *Integuments*, protect them both from *rotting*, and the *Vermine*.

7. The *domestic Pine* grows very well with us both in *Mountains* and *Plains*; but the *Pinaster* or wilder (of which are four sorts) best for *Walks*, because it grows tall, and proud, maintaining their Branches at the sides, which the *Pine* does lesse frequently.

8. The *Fir* grows tallest, being planted reasonable close together; but suffers nothing to thrive under them. The *Pine* not so *Inhospitable*; for (by *Plinies* good leave) it may be sown with any *Tree*, all things growing well under its *shade*, and excellent in *Woods*; hence *Claudian*,

The friendly *Pine* the mighty *Oke* invites. *Et comitem quercum Pinus amica trahit.*

9. They both affect the *cold*, *high*, and *rockie* grounds, *Abies in montibus altis*; yet will grow in better, but not in over rich, and *pinguid*. The worst Land in *Wales* bears (as I am told) large *Pine*; and the *Fir* according to his aspiring nature, loves also the *Mountain* more than the *Valley*; but ἐν τοῖς παλιοχίοις ὅλως οὐκ φύεται, It cannot endure the *Shade*, as *Theophrastus* observes, *de Pl. l.4.c.1.* But this is not rigidly true; for they will grow in *Consort*, till they even shade, and darken one another, and will also descend from the *Hills*, and succeed very well, being desirous of plentiful *waterings*, till they arrive to some competent *stature*: and therefore they do not prosper so well in an over *sandy*, and *hungry* Soil, or *gravel*, as in the very entrails of the *Rocks*, which afford more *drink* to the *Roots*, that penetrate into their *meanders*, and winding recesses. But though they require this *refreshing* at first, yet do they perfectly abhor all *stercoration*; nor will they much endure to have the earth open'd about their Roots for *Ablaqueation*, or be disturb'd. This is also to be understood of *Cypress*. A *Fir* for the *first* half dozen years seems to stand, or at least make no considerable advance; but it is when throughly *rooted*, that it comes away miraculously. That Honourable Knight Sir *Norton Knatchbull* (whose delicious *Plantation* of *Pines*, and *Firs* I beheld with great

great satisfaction) having assur'd me that a *Fir-tree* of his raising, did shoot no lesse than sixty foot in *height*, in little more than *twenty* years, is a pregnant instance, as of the speedy growing of that *material*; so of all the encouragement I have already given for the more frequent cultivating this ornamental, useful, and profitable Tree.

10. The *Picea* is another sort of *Pine*, and to be cultivated like it, the *cold* grounds which these *Plants* most affect, though it be hard to discover, *Pitch.*

Yet sometimes *Pitch-trees* and the noxious *Yew*,
Or the dark *Ivy* will dire Symptomes shew.

——*Picia tantum, taxique nocentes*
Interdum, aut ederæ pandunt Vestigia nigræ.
Georg. 2.

And therefore I am not satisfied why it might not prosper in some tollerable degree in *England*, as well as in *Germany*, *Russia*, the Colder *Tracts*, and abundantly in *France*: It grows on the *Alpes* among the *Pine*, but neither so tall nor so upright, and produces a *Gum* almost as white and firm as *Frankincense*: But it is the *Larix* (another sort of *Pine*) that yields the *Venetian Turpentine*.

11. There is also the *Piceaster* (a wilder sort) out of which the greatest store of *Pitch* is boyl'd. The *Teda* likewise, which is a sort abounding in *Dalmatia*, more unctious, and more patient of the warmer situations, and so inflamable, that it will slit into *Candles*, and therefore some will by no means admit it to be of a different *Species*, but a *metamorphosis* of over-grown fattinesse, to which the most Judicious incline.

12. The *Bodies* of these being cut, or burnt down to the ground, will emit frequent *Suckers* from the Roots; but *so* will neither the *Pine* nor *Fir*: But the *Fir* may be propagated of *Layers*, which I divulge, as a considerable *Secret* that has been essay'd with successe.

13. That all these, especially the *Fir*, and *Pine*, will prosper well with us is more than probable, because it is a kind of *Demonstration* that they did heretofore grow plentifully in *Cumberland*, *Cheshire*, *Stafford*, and *Lancashire*, if the multitudes of these *Trees* to this day found intire, and *buried* under the *Earth*, though supposed to have been or'ethrown and cover'd *so* ever since the universal *Deluge*, be indeed of this *Species*: That incomparable *Naturalist*, the Learned *Dr. Merrett*, in his *Pinax*, speaks of several *places* of this *Nation*, where *subterraneous Trees* are found; as namely, in *Cornwal*, *ad finem terræ*, *in agris Flints*; in *Penbrok-shire* towards the shore, where they so abound, *ut totum littus* (says the Doctor) *tanquam Sylva cædua apparet*; in *Cheshire* also, as we said, *Cumberland*, and *Anglesey*, and several of our *Euro-boreal* tracts, and are called *Noahs-Ark*. By *Chatnesse* in *Lancashire* (says *Cambden*) the low *Mossie* ground was no very long time since, carried away by an impetuous *flood*, and in that place now lies a low irriguous *Vale*, where many prostrate *Trees* have been digged out: These *Trees* were (some think) carried away in times past by some accident

accident of *Innundation*, or by *Waters* undermining the ground, till their own *weight*, and the *Winds* bow'd them down and overwhelm'd in the *Mud*: For 'tis observ'd, that these *Trees* are no where found but in *Boggie* places; but that the burning of these *Trees* so very bright, should be an *Argument* they were *Fir*, is not necessary, since the *Bituminous* quality of such *Earth* may have imparted it to them; and *Cambden* denies them to be *fir*-trees, suggesting the *Querie*; Whether there may not *possibly* grow Trees even under the *Ground*, as well as other things? There are in *Cumberland*, on the Sea-shore, *Trees* sometimes discover'd at *Low-water*, and at other times that lye buried in the *Sand*; and in other *Mossie* places of that *Shire* 'tis reported, the People frequently dig up the Bodies of vast *Trees* without *Boughs*, and that by direction of the *Deaw* alone in *Summer*; for they observe it never lyes upon that part, under which those Trees are interr'd. These particulars I find noted by the Ingenious *Authour* of the *Britannia Baconica*: But we shall enquire farther concerning these *Subterranean* Productions anon, and whether the *Earth*, as well as the *Water*, have not the vertue of strange *Transmutations*: These *Trees* are found in *Moors* by poking with *Staves* of three or four foot length, shod with *Iron*.

14. In *Scotland* (as we noted) there is a most beautiful sort of *Fir* growing upon the *Mountains*; of which from the late *Marquiss* of *Argyle*, I had sent me some seeds, which I have sown with tolerable successe; and I preferr them before any other, becaus they grow both very erect, and fixing themselves stoutly, need little or no support. And there neer *Loughbrun*, 'twixt the *Lough* and an *Hill*, they grow in such quantity; that from the spontaneous Fall, Ruine, and Decay of the *Trees* lying crosse one another to a Man's height, partly cover'd with *Mosse*, and partly *Earth* and *Grasse*, which rots, fills up, and grows again, a considerable *Hill* has in processe of time been raised to almost their very tops, which being an Accident of singular *remark*, I thought fit to mention.

15. For the many, and almost universal use of these *Trees*, both *Sea* and *Land* will plead,

The useful *Pine* for Ships——— ——*dant utile Lignum*
Navigiis Pinos—— Georg. 2.

Hence *Papinius* 6. *Thebaid.* calls it *audax abies*. They make our best *Mast*, *Sheathing*, *Scaffold-poles*, *&c.* heretofore the whole *Vessel It is pretty* (saith *Pliny*) *to consider, that those Trees which are so much sought after for* Shipping, *should most delight in the highest of* Mountains, *as if it fled from the* Sea *on purpose, and were afraid to descend into the* Waters. With *Fir* we likewise make all *intestine* works, as *Wainscot*, *Floors*, *Pales*, *Balks*, *Laths*, *Boxes*, *Bellies* for all *Musical Instruments* in general, nay the Ribs and Sides of that enormous *Stratagem*, the so famous *Trojan Horse*, may be thought to be built of this *Material*, and if the *Poet* mistake not.

——The

——The Ribs with *Deal* they fit; —— *Sectáque intexunt* Abiete *costas.*
Æn. 2.

It is exceeding smooth to *polish* on, and therefore does well under *Gilding* work, and takes *black* equal with the *Pear-tree* : Both *Fir*, and especially *Pine*, succeed well in *Carving*, as for *Capitols*, *Festoons*, nay *Statues*, especially being *Gilded*, because of the easiness of the *Grain*, to work and take the *Tool* every way; and he that shall examine it nearly, will find that famous *Image* of the *B. Virgin* at *Loretto* (reported to be Carved by the hands of S. *Luke*) to be made of *Fir*, as the grain easily discovers it. The *Torulus* (as *Vitruvius* calls it) and *heart* of Deal, kept dry, rejecting the *Albumen* and white is everlasting; nor does there any *Wood* so well agree with the *glew*, as it, or so easie to be wrought : It is also excellent for *Beams*, and other *Timber-work* in *Houses*, being both light, and exceedingly strong, and therefore of very good use for *Barrs* and *bolts* of *Doors*, as well as for *Doors* themselves, by reason of a natural *Spring* which it has, not easily violated : You shall find, that of old they made *Carts*, and *Coaches* of it : For *Scaffolding* also there is none comparable to it; and I am sure we find it an extraordinary saver of *Oak* where it may be had at reasonable *price*. I will not complain what an incredible mass of ready *Money* is yearly exported into the *Northern Countreys* for this sole Commodity, which might all be saved were we *industrious* at *home*. Likewise from *Fir* we have the most of our *Pot-Ashes* : Of *Fir* are made our *Torch* or *Funebral-staves*; nay, and of old, *Spears* of it, if we may credit *Virgil's Amazonian* Combate,

——She prest
A long *Fir* Spear through his exposed Breast. ——*Cujus apertum*
Adversi lengâ transverberat abiete pectus.
Æn. 11.

Lastly, the very *Chips*, or *Shavings* of *Deal-boards*, are of other use than to kindle *Fires* alone : *Thomas Bartholinus* in his *Medicina Danorum Dissert. 7. &c.* where he disclaims the use of *Hops* in *Beer*, as pernicious and malignant, and from several instances how apt it is to produce and usher in *Infections*, nay, *Plagues*, *&c.* would substitute in its place, the *Shavings* of *Deal-boards*, as he affirms, to give a grateful *odor* to the *Drink*; and how soverain those *resinous woods*, the Tops of *Fir* and *Pines*, are against the *Scorbut*, we generally find : It is in the same *Chapter* that he commends also *Wormwood*, *Marrubium*, *Chamelæagnum*, *Sage*, *Tamarisc*, and almost any thing rather than *Hopps*. The *Pine*, or *Picea* buried in the Earth never decay : From the latter *transudes* a very bright and pellucid *Gum*; hence we have likewise *Rosin*; also of the *Pine* are made *Boxes*, and *Barrels* for *dry Goods*; yea, and it is cloven into *Shingles* for the covering of Houses in some places; also *Hoops* for *Wine-Vessels*, especially, of the easily flexible *Wild-Pine*; not to forget the *Kernels* (this *Tree* being always furnish'd with *Cones*, some *ripe*, others *green*) of such admirable use in *Emulsion*, and

the *Tooth-pickers* for which even the very *leaves* are commended: In sum, they are *Plantations* which exceedingly improve the *Air* by their *oderiferous*, and *balsamical* emissions, and for ornament, create a *perpetual Spring* where they are plentifully propagated. And if it could be proved that the *Almugim-trees*, Recorded 1 *Reg.* 10. 12. and whereof *Pillars* for that famous *Temple*, and the *Royal Palace*, *Harps*, and *Psalteries*, *&c.* were made, were of this sort of *Wood* (as some doubt not to assert) we should esteem it at another rate; yet we know *Josephus* affirms they were a kind of *Pine-tree*, though somewhat resembling the *Fig-tree* wood to appearance, as of a most lustrious *Candor*. In the 2 *Chron.* 2. 8. there is mention of *Almug-trees* to grow in *Lebanon*; and if so, methinks it should rather be a kind of *Cedar*; (yet we find *Firr* also in the same period) for we have seen a *whiter* sort of it, even very *white* as well as *red*; though some affirm it to be but the *Sap* of it (so our *Cabinet-makers* call it) I say, their were both *Fir* and *Pine-trees* also growing upon those *Mountains*. Mr. *Purchas* informs us, that Dr. *Dee* Writ a laborious *Treatise* almost wholly of this *Subject* (but I could never have the good hap to see it) wherein, as *Commissioner* for *Solomon's Timber*, and like a Learned *Architect*, and *Planter*, he has summon'd a *Jury* of *twelve* sorts of *Trees*. namely, 1. the *Fir*, 2. *Box*, 3. *Cedar*, 4. *Cypresse*, 5. *Ebony*, 6. *Ash*, 7. *Juniper*, 8. *Larch*, 9. *Olive*, 10. *Pine*, 11. *Oke*, and 12. *Sandal-trees*, to examine which of them were this *Almugim*, and at last seems to concur with *Josephus*, in favour of *Pine* or *Fir*; who possibly from some antient *Record*, or *fragment* of the *Wood* it self, might learn something of it; and 'tis believ'd, that it was some material both *odoriferous* to the *Sent*, and *beautiful* to the *Eye*, and of fittest temper to refract *Sounds*; besides its serviceableness for *Building*, all which Properties are in the best sort of *Pine* or *Thyina*, as *Pliny* calls it; or perhaps some other rare *Wood*, of which the *Eastern Indias* are doubtless the best provided; and yet I find, that these vast *beams* which sustain'd the Roof of S. *Peter's* Church at *Rome*, laid (as reported) by *Constantine* the *Great*, were made of the *Pitch tree*, and have lasted from *Anno* 336. down to our dayes, above 1300. years.

16. But now whiles I am reciting the *Uses* of these beneficial Trees, Mr. *Winthorp* presents the *Royal Society* with the *Process* of making the *Tar* and *Pitch* in *New-England*, which we thus abbreviate. *Tar* is made out of that sort of *Pine-tree* from which naturally *Turpentine* extilleth; and which at its first flowing out is liquid and clear; but being hardned by the *Air*, either on the *Tree*, or where-ever it falls, is not much unlike the *Burgundy Pitch*; and we call them *Pitch pines* out of which this *gummy* substance transudes: They grow upon the most *barren Plains*, on *Rocks* also and *Hills* rising amongst those *Plains*, where several are found blown down, that have lain so many *Ages*, as that the whole Bodies, Branches and Roots of the Trees being perished, some certain *knots* onely of the Boughs have been left remaining intire (these *knots* are that part where the *bough* is joyn'd to the

body

body of the *Tree*) lying at the same distance and posture as they grevv upon the *Tree* for its vvhole length. The Bodies of some of these *Trees* are not corrupted through age, but quite consum'd and reduc'd to ashes, by the annual *burnings* of the *Indians*, when they set their grounds on *fire*; which yet has, it seems, no power over these hard *knots*, beyond a black scorching; although being laid on heaps, they are apt enough to burn. It is of these *knots* they make their *Tar* in *New-England* and the *Countrey* adjacent, whiles they are well impregnated with that *Terebinthine*, and *Resinous* matter, which like a *Balsam* preserves them so long from *putrifaction*. The rest of the *Tree* does indeed contain the like *Terebinthine Sap*, as appears (upon any slight incision of *bark* on the stem, or boughs) by a small crystaline pearl which will sweat out; but *this*, for being more watery, and undigested by reason of the *porosity* of the Wood, which exposes it to the impressions of the *Air* and *Wet*, renders the Tree more obnoxious; especially, if it lye prostrate with the *bark* on, which is a receptacle for a certain *Intercutaneous* Worm, that accelerates its decay. They are the *knots* then alone which the *Tar-makers* amass in *heaps*, carrying them in *Carts* to some convenient place not far off, where finding *Clay*, or *Loam* fit for their turn, they lay an *Hearth* of such ordinary stone as they have at hand: This they build to such an height from the level of the ground, that a *Vessel* may stand a little lower then the *Hearth*, to receive the *Tar* as it runs out: But first, the *Hearth* is made wide according to the quantity of *knots* to be set at once, and that with a very smooth *floor* of *Clay*, yet somewhat descending, or dripping from the extream parts to the *middle*, and thence towards one of the *sides*, where a *gullet* is left for the *Tar* to run out at. The *Hearth* thus finish'd, they pile the *knots* one upon another, after the very same manner as our *Colliers* do their *wood* for *Char-coal*; and of a height proportionable to the breadth of the *Hearth*; and then cover them over with a coat of *loam* or *clay* (which is best) or in defect of those, with the best, and most tenacious *Earth* the place will afford; leaving onely a small *spiracle* at the top, whereat to put the *fire* in; and making some little *holes* round about at several heights, for the admission of so much *air* as is requisite to keep it burning, and to regulate the *fire* by opening, and stopping them at pleasure. The *processe* is almost the the same with that of making *Char coal*, as will appear in due place; for when it is well on *fire*, that middle *hole* is also stopp'd, and the rest of the *Registers* so govern'd, as the *knots* may keep burning and not be suffocated with too much *smoak*, whiles all being now through-heated, the *Tar* runs down to the *Hearth*, together with some of the more watry *Sap*, which hasting from all *parts* towards the *middle*, is convey'd by the fore-mention'd *gutter* into the *Barrel*, or *Vessel* placed to receive it: Thus, the whole *Art* of *Tar-making* is no other, than a kind of rude distillation *per descensum*, and might therefore be as well done in *Furnaces* of large capacity, were it worth the expence. When the *Tar* is now all melted out, and

run, they stop up all the *vents* very close; and afterwards find the *knots* made into excellent *Char-coal*, preferr'd by the *Smiths* before any other whatsoever which is made of wood; and nothing so apt to burn *out* when their *blast* ceaseth; neither do they *sparkle* in the *fire*, as many other sorts of *Coal* do; so as, in defect of *Sea-coal*, they make choice of *this* as best for their use, and give greater *prices* for it. Of these *knots* likewise do the *Planters* split out small *slivers* about the thickness of one's *finger*, or somewhat thinner, which serve them to burn in stead of *Candles*; giving a very good light. This they call *Candle-wood*, and it is in much use both in *New-England*, *Virginia*, and amongst the *Dutch-planters* in their *Villages*; but for that it is something offensive, by reason of the much suliginous *smoak* which comes from it, they commonly burn it in the *chimney-corner* upon a flat *stone* or *Iron*; except, occasionally, they carry a single *stick* in their hand, as there is need of light to go about the house. It must not be conceiv'd, by what we have mention'd in the former description of the *knots*, that they are only to be separated from the *bodies* of the *trees* by devouring *time*, or that they are the only *materials* out of which *Tar* can be extracted: For there are in these *Tracts* millions of *Trees* which abound with the same sort of *knots*, and full of *Turpentine* fit to make *Tar*: But the labour of *felling* these *Trees*, and of *cutting* out their *knots*, would far exceed the value of the *Tar*; especially in *Countries* where *Workmen* are so very dear: But those *knots* above mention'd, are provided to hand, without any other labour then the gathering only. There are sometimes found of those sort of *Pine-trees* the lowest part of whose stems towards the *root* is as full of *Turpentine* as the *knots*; and of these also may *Tar* be made: but such *Trees* being rarely found, are commonly preserved to split into *Candle-wood*; because they will be easily *riven* out into any lengths, and scantlings desir'd, much better then the *knots*. There be who pretend an *art* of as fully *impregnating* the body of any living *Pine-tree* for six or eight foot high; and some have reported that such an *art* is practis'd in *Norway*: But upon several *experiments*, by *girdling* the *Tree* (as they call it) and cutting some of the *bark* round, and a little *into* the *wood* of the *Tree*, six or eight foot distant from the ground, it has yet never succeeded; whether the just *season* of the year were not observ'd, or what else omitted, were worth the *disquisition*; if at least there be any such *secret* amongst the *Norwegians*, *Swedes*, or any other *Nation*. Of *Tar*, by boiling it to a sufficient *height*, is *Pitch* made: and in some places where *Rosin* is plentiful, a fit proportion of that may be dissolved in the *Tar* whiles it is boiling, and this *mixture* is sooneſt converted to *Pitch*; but it is of somewhat a differing *kind* from that which is made of *Tar* only, without other composition. There is a way which some *Ship-Carpenters* in those Countries have us'd, to bring their *Tar* into *Pitch* for any sudden use; by making the *Tar* so very hot in an *Iron-kettle*, that it will easily take *fire*, which when *blazing*, and set in an *airy* place, they let burn so long, till, by taking out

out some small quantity for trial, being *cold*, it appears of a sufficient *consistence*: Then by covering the *Kettle* close, the *fire* is extinguish'd, and the *Pitch* is made without more ceremony. There is a *process* of making *Rosin* also out of the same *knots*, by splitting them out into thin pieces, and then boiling them in *water*, which will educe all the *Resinous* matter, and gather it into a *body* which (when cold) will harden into pure *Rosin*. It is moreover to be understood, that the *Fir* and most *Coniferous* Trees, yield the same *Concretes*, *Lachrymæ*, *Turpentines*, *Rosins*, *Hard*, *Naval* or stone and liquid *Pitch* and *Tar* for innumerable *uses*; and from the burning, and fuliginous vapour of these, especially, the *Rosin*, we have our *Lamp* and *Printers* black, *&c.* I am perswaded the *Pine*, and *Fir* trees in *Scotland*, might yield his *Majesty* plenty of excellent *Tar*, were some industrious Person employ'd about the work.

CHAP. XXIII.

Of the Larch, Platanus, Lotus, Cornus, *&c.*

1. *Larix*; though of the *Coniferous* family, looses its *leaf*, and therefore we separate him from the *Firs* and *Pines*; but why we might not hope as well of the *Larch* as from any of them I know not: I read of *Beams* of no less then 120. foot in length made out of this goodly Tree, which is of so strange a composition, that 'twill hardly burn, as *Cæsar* found in a *Castle* he besieg'd built of it; (the story is recited at large by *Vitruvius l. 2. c. 9.*) but see what *Philander* says upon the place, on his own experience: yet the *Coals* thereof were held far better then any other for the melting of *Iron*. There is abundance of this *Larch* timber in the *Buildings* at *Venice*, especially about the *Palaces* in *Piazza San Marco*, where I remember *Scmozzi* says he himself us'd much of it, and infinitely commends it: *Tiberius* we find built that famous *Bridg* to his *Naumachia* with it; and it seems to excel for *Beams*, *Dores*, *Windoes*, and will support an incredible Weight; which (and for its property of long refecting *fire*) makes *Vitruvius* wish they had greater plenty of it at *Rome* to make *Goists* of. From this *Tree* it is that useful Drug *Agaric* is gathered; and the timber of it is so exceedingly transparant, that *Cabanes* made of the thin *boards*, when in the dark night, they have lighted candles, people, who are at a distance without dores, would imagine the whole room to be on fire, which is pretty odd, considering there is no material so unapt to kindle. That which now grows some where about *Chelnsford* in *Essex*, arriv'd to a flourishing, and ample *Tree*, does sufficiently reproach our negligence and want of *industry*, as well as the incomparable and shady. *Larch.*

2. *Platanus*,

Platanus. 2. *Platanus*, *that* so beautiful and precious *Tree*, so doated on by *Xerxes*, that *Ælian* and other *Authours* tell us he made *halt*, and stop'd his prodigious *Army* of *seventeen hundred thousand* souldiers which even cover'd the *Sea*, exhausted *Rivers*, and thrust Mount *Athos* from the *Continent*, to admire the pulchritude and procerity of one of these goodly *Trees*, and became so fond of it, that spoiling both *himself*, his *Concubines*, and great Persons of all their *jewels*, he cover'd it with *Gold*, *Gems*, *Neck-laces*, *Scarfs* and *Bracelets*, and infinite riches; In sum, was so *enamor'd* of it, that for some days neither the concernment of his grand *Expedition*, nor interest of *honor*, nor the necessary motion of his portentous *Army*, could perswade him from it: He styl'd it his *Mistris*, his *Minion*, his *Goddesse*; and when he was forc'd to part from it, he caus'd the figure of it to be stampt in a *Medail* of *Gold*, which he continually wore about him. These Trees the *Romans* first brought out of the *Levant*, and cultivated with so much industry and cost, for its stately and proud head only; that great *Orators* and *States-men*, *Cicero* and *Hortensius* would exchange now and then a *turn* at the *Bar*, that they might have the pleasure to step to their *Villas*, and refresh their *Platans*, which they would often *irrigate* with *Wine* instead of *Water*; and so priz'd the very *shadow* of it, that when afterwards they transplanted them into *France*, they exacted a *Tribute* of any of the *Natives* who should presume but to put his *head* under it. *Pliny* tells us there is no *Tree* whatsoever which so well defends us from the *heat* of the *Sun* in *Summer*; nor that admits it more kindly in *Winter*. And for our encouragement, I do upon experience assure you, that they will flourish and abide with us, without any more trouble than frequent, and plentiful *Watering*, which from their youth they excessively delight in, and gratefully acknowledge by their growth accordingly; so as I am perswaded, that with very ordinary Industry, they might be propagated to the incredible *Ornament* of the *Walks* and *Avenues* to Great-mens houses. The Introduction of this true *Plane* amongst us, is due to that *honorable Gentleman Sir Geo. Crook* of *Oxfordshire*, from whose bounty I received an hopefull plant now growing in my *Villa*.

Macrob. Saturnal. 3.

3. There was lately at *Basil* in *Switzerland* an ancient goodly *Platanetum*, and now in *France* they are come again in vogue: I know it was antiently accounted ἄωρος; but they may with us be rais'd of their *seeds* with care, in a moist soil, as *here* I have known them: But the reason of our little success, is, that we very rarely have them sent us *ripe*; which should be gather'd *late* in *Autumn*, and brought us from some more *Levantine* parts than *Italy*. They come also of *Layers* abundantly; affecting a fresh and feeding ground; for so they plant them about their *Rivulets*, and *Fountains*. The *West-Indian Plane* is not altogether so rare, but it rises to a goodly *Tree*, and bears a very ample, and lesse jaged *leaf*: That the *Turks* use their *Platanus* for the building of *Ships*, I learn out of *Riccioln Hydrog. l.* 10. *c.* 37.

Lotus. 4. The same opinion have I of the noble *Lotus*, (another lover of

of the *Water*) which in *Italy* yields both an admirable *shade*, and *Timber* immortal. Of this *Wood* are made *Pipes* and *Wind-Instruments*, and of its *Root*, Hafts for *knives*, and other *Tools*, &c. The offer of *Crassus* to *Domitius* for half a dozen of these *Trees* growing about an house of his in *Rome*, testifies in what esteem they were had for their incomparable beauty and use. The *Cornel-tree*, *Cornus.* though not mention'd by *Plinie* for its *Timber*, is exceedingly commended for its durableness, and use in *Wheel-work*, *Pinns*, and *Wedges*, in which it lasts like the hardest *Iron*; and it will grow with us to good bulk and stature; and the preserv'd, and pickl'd *berries*, are most refreshing, and an excellent condiment.

CHAP. XXIV.

Of the Cypress-tree *and* Cedar.

Cupressus, the *Cypresse-Tree*, is either the *Sative* or *Garden* tree, *Cypress.* the most *pyramidal* and beautiful; or that which is call'd the *Male*, (though somewhat prepostrously) which bears the *Cones*, but is of a more extravagant shape: should we reason only from our common *experience*, even the *Cypresse-tree* was, but within a few years past, reputed so tender, and nice a *Plant*, that it was cultivated with the greatest care, and to be found only amongst the *Curious*; whereas we see it now, in every *Garden*, rising to as goodly a bulk and stature, as most which you shall find even in *Italy* it self; for such I remember to have once seen in his late *Majesties Gardens* at *Theobalds*, before that *Princely* seat was demolish'd. I say, if we did argue from this *Topic*: Methinks it should rather encourage our *Country-men* to add yet to their *Plantations* other *Forreign* and *useful* Trees, and not in the least deter them, because many of them are not as yet become *endenizon'd* amongst us.

2. We may read that the *Peach* was at first accounted so tender and delicate a *Tree*, as that it was believ'd to thrive only in *Persia*; and even in the days of *Galen*, it grew no nearer then *Egypt*, of all the *Roman* Provinces, but was not seen in the *City* till more then *thirty* years before *Pliny*'s time; whereas there is now hardly a more common and universal in *Europe*: Thus likewise, the *Avellana* from *Pontus* in *Asia*; Thence into *Greece*, and so *Italy*, to the City of *Abellino* in *Campania*.

Una tantùm litera immutata, Avellina *dici*, *quæ prius* Abellina.

I might affirm the same of our *Damasco* Plum, *Quince*, *Medlar*, *Figue*, and most ordinary *Pears*, as well as of several other *Peregrine* Trees, *Fruit-bearers*, and *others*; For even the very *Damask-rose* it self, (as my Lord *Bacon* tels us *Cent.* 2. *Exp.* 659.) is little more than

than an *hundred* years old in *England*: Methinks this should be of wonderful incitement. It was 680 years after the foundation of *Rome*, ere *Italy* had tasted a *Cherry* of their own, which being then brought thither out of *Pontus* (as the above-mention'd *Filberts* were) did afterwards travel *ad ultimos Britannos*.

3. *Josephus* tels us, *That the* Cedar *in* Judea *was first planted* there *by* Solomon, who doubtless try'd many rare *Experiments* of this nature; and none more *Kingly* then that of *Planting* to *Posterity*. I do not speak of those which grow on the *Mountains* of *Libanus*, in the colder and *Northern* tracts of *Syria*: But as I am inform'd by that curious *Traveller*, *Ranwolfius*, *i.* Since also confirm'd by that *Virtuoso* Monsieur *Monconys*, there remaining now not above *twenty four* of those stately *Trees* in all those goodly *Forests*, where that mighty *Prince* set *fourscore thousand Hewers* at work for the *Materials* of one onely *Temple* and a *Palace*, 'tis a pregnant *Example* what *Time*, and *Neglect* will bring to *ruine*; if due, and continual care be not taken to propagate *Timber*.

In Itinerario.

4. Nor is it any wonder if we find the whole *Species* of some *Trees* so totally lost in a *Countrey*, as if there had never been any such planted in it: Be this therefore applied to *Fir*, *Pine*, and many others with us; since it was so long ere *Rome* was acquainted with them, or indeed with any of the *Pitch*-bearers.

5. We had our first *Myrtils* out of *Greece*, and *Cypress* from *Creete*, which was yet a meer stranger in *Italy*, as *Pliny* reports, and most difficult to be raised; which made *Cato* to write more concerning the *culture* of it then of any other *Tree*: Notwithstanding we have in this *Countrey* of ours, no less then *three* sorts, which are all of them easily propagated, and prosper very well if they are rightly ordered; and therefore I shall not omit to disclose one *secret*, as well to confute a *popular* Errour, as for the Instruction of our *Gard'ners*.

6. The *Tradition* is, That the *Cypress* (being a *Symbol* of *Mortality*, they should say of the contrary) is never to be *cut* for fear of *killing* it. This makes them to *impale*, and *wind* them about like so many *Ægyptian Mummies*; by which means the inward parts of the *Tree* being heated, for want of *Air* and Refreshment, it never arrives to any perfection, but is exceedingly troublesome, and chargeable to maintain; whereas indeed, there is not a more *tonsile* and governable *Plant* in nature; For the *Cypress* may be *cut* to the very *Roots*, and yet spring afresh: And this we find was the *husbandry* in the *Isle* of *Ænaria*, where they us'd to fell it for *Copse*: For the *Cypress* being rais'd from the *Nursery* of *Seeds* sown in *September* (or rather *March*,) and within two years after *transplanted*, should at two years standing *more*, have the *master* stem of the *middle* shaft cut off some hand-breadth below the *summit*, the *sides*, and smaller sprigs shorn into a *conique* or *pyramidal* form, and so kept *clipp'd* from *April* to *September*, as oft as there is occasion; and by this *Regiment* they will grow *furnish'd* to the *foot*, and become the most *beautiful* Trees in the world, without *binding* or *stake*; still remembring to *abate* the *middle* stem, and to bring up the *collateral*

lateral branches in its stead to what altitude you please; but when I speak of *shortning* the middle *shoot*, I do not intend the *dwarfing* of it, and therefore it must be done discreetly, so as it may not over-hastily advance, till the *foot* thereof be perfectly furnished: But there is likewise another, no lesse commendable expedient, to dresse this *Tree* with all the former advantages; if sparing the shaft altogether, you diligently cut away all the *forked branches*, reserving onely such as radiate directly from the *body*, which being shorn, and clipt in due season, will render the *Tree* very beautiful; and though more subject to obey the shaking *winds*, yet the natural *spring* of it, does immediately redress it, without the least discomposure; and this is a *secret* worth the learning of *Gard'ners*, who subject themselves to the trouble of *stakes* and *binding*, which is very inconvenient. Thus likewise may you form them into *Hedges* and *Topiary* works, or by sowing the *Seeds* in a shallow *furrow*, and plucking up the *Supernumeraries* where they come too close and thick: For in this *work* it shall suffice to leave them within a foot of each other; and when they are risen about a yard in height (which may be to the half of your *Palisado*) cut off their *tops*, as you are taught, and keep the sides *clipp'd*, that they ascend but by degrees, and thicken at the bottom as they climbe. Thus, they will present you in half a dozen or eight years, with incomparable *hedges*, preferable to all others whatsoever, becaus they are perpetually green, and able to resist the *Winds* better then any which I know, the *Holly* only excepted, which indeed has no *peer*.

7. When I say *Winds*, I mean their fiercest *gusts*, not their *cold*: For though it be said, *Brumáque illæsa Cupressus*, and that indeed no *frost* impeaches them (for they grow even on the *snowy* tops of *Ida*,) yet our cruel *Eastern* winds do sometimes mortally invade them which have been late *clipp'd*, seldom the untouch'd, or that were *dressed* in the *Spring* only: The effects of the late *March* and *April* Winds (in the years 1663. and 1665.) accompanied with cruel *Frosts* and cold *blasts*, for the space of more then two *months* night and day, did not amongst neer a thousand *Cypresses* (growing in my *Garden*) kill above *three* or *four*, which for being very *late* cut to the *quick* (that is, the latter end of *October*) were raw of their *wounds*, took cold, and *gangreen'd*; some few others which were a little smitten towards the *tops*, might have escaped all their blemishes, had my *Gard'ner* capp'd them but with a *wisp* of *hay* or *straw*, as in my absence, I *commanded*. As for the *frost* of those *Winters* (then which I believe there was never known a more cruel and deadly piercing since *England* had a name) it did not touch a *Cypress* of mine till it joyn'd forces with that destructive *Wind*: Therefore for *caution*, clip not your *Cypresses* late in *Autumn*, and cloath them (if young) against these *winds*; for the *frosts* they only *discolour* them, but seldom, or never hurt them, as by long *experience* I have found.

8. If you affect to see your *Cypress* in *Standard*, and grow wild

(which may in time come to be of a large substance, fit for the most immortal of *Timber*) plant of the reputed *Male* sort; it is a *Tree* which will prosper wonderfully; and where the ground is *hot*, and *gravelly*, though (as we say'd) he be nothing so beautiful; and it is of *this*, that the *Venetians* make their greatest profit.

9. There is likewise the *Tarentine Cypress*, so much celebrated by *Cato*; I do not mean our *Savine*, (which some erroneously take for it, though there be a *Berry-bearing Savine*, much resembling the *Cypress*, which comes to prove a gallant, upright *Tree*, fit for the *Standard*.) Both *that*, and the *Milesian*, are worthy our culture.

10. I have already shew'd how this *Tree* is to be rais'd from the *seed*; but there was another *Method* amongst the *Ancients*, who (as I told you) were wont to make great *Plantations* of them for their *Timber*: I have practis'd it my self, and therefore describe it.

11. If you receive your *seed* in the *Nuts* which uses to be gather'd *thrise* a year, (but seldom ripening with us) expose them to the *Sun* till they *gape*, or neer a gentle *fire*, or put them in *warme water*, by which means the *seeds* will be easily shaken out; for if you have them open before, they do not yield you half their crop. About the beginning of *April* (or before, if the weather be *showery*) prepare an even *Bed*, which being made of fine *earth*, clap down with your *Spade*, as *Gard'ners* do for *Purslain-seed*: of old they roll'd it with some *Stone* or *Cylinder*) Upon this strew your *seeds* pretty thick; then sieft over them some more *mould* somewhat better than half an *inch* in height: keep them duly *watered* after *Sun-set*, unless the season do it for you; and after one *years* growth (for they will be an *inch* high in little more than a *Moneth*) you may *transplant* them where you please. In watering them, I give you this *caution* (which may also serve you for most tender and delicate *seeds*) that you deaw them rather with a *broom* or *spergatory*, then hazard the beating them out with the common *watering-pot*; and when they are well come up, be but sparing of *water*: Be sure likewise that you clense them when the *weeds* are very young and tender, least in stead of *purging*, you quite erradicate your *Cypress*: We have spoken of *Watering*, and indeed whilst young, if well follow'd, they will make a prodigious advance: when that long, and incomparable walke of *Cypress* at *Frascati* neer *Rome* was first planted, they drew a small stream (and indeed *Irrigare* is properly thus, *aquam inducere riguis* (*i.e.*) in small gutters and rills) by the foot of it, (as the *Water* there is in abundance tractable) and made it arrive to seven or eight foot height in one year; but with us, we may not be too prodigal; since, being once well taken, they thrive best in our sandy, light, and warmest grounds, whence *Cardan* says, *juxta aquas arescit*, meaning in low and mooriſh places, stiff and cold earth, *&c.* where they never thrive.

12. What the *Uses* of this *Timber* are, for *Chests* and other *Utensils*, *Harps*, and divers other *Musical Instruments* (it being a very sonorus

sonorous wood, and therefore employ'd for *Organ-pipes*, as heretofore for *supporters* of *Vines*, *Poles*, *Rails*, and *Planks*, (resisting the *Worm*, *Moth*, and all putrefaction to *eternity*) the *Venetians* sufficiently understand; who did every *twenty* year, and oftner (the *Romans* every *thirteen*) make a considerable *Revenue* of it out of *Candy*: And certainly a very gainful *commodity* it was, when the *Fell* of a *Cupressetum* was heretofore reputed a good Daughters *Portion*, and the *Plantation* it self call'd *Dotem filiæ*. But there was in *Candy* a vast *Wood* of these *Trees* belonging to the *Republique*, by malice or accident set on *Fire*, which *Anno* 1400. burnt for seven *years* continually, before it could be quite extinguish'd; fed so long a space by the *unctuous* nature of the *Timber*, of which there were to be seen at *Venice* planks of above *foure* foot in bredth; and formerly the *Valves* of *Saint Peters Church* at *Rome* were framed of this Material, which lasted from the great *Constantine* to *Pope Eugenius* the *Fourths* time, almost six hundred *years*; and then were found as fresh and intire as if they had been new: But this *Pope* would needs change them for *Gates* of *Brasse*, which were cast by the famous *Antonio Philarete*; not in my opinion so venerable as those other of *Cypresse*. It was in *Coffins* of this material, that *Thycidides* tells us, the *Athenians* us'd to bury their *Heros*.

13. The *Timber* of this *wood* was of infinite esteem with the *Antients*: That lasting *Bridge* built over the *Euphrates* by *Semiramis* was made of this *wood*; and it is reported, *Plato* chose it to Write his *Laws* in before *Brasse* it self, for the *diuturnity* of the matter: It is certain, that it never *rifts* or *cleaves*, but with great violence; and the *bitterneſſe* of its *juice* preserves it from all *Worms*, and putrifaction. To this day those of *Creet*, and *Malta* make use of it for their *Buildings*; because they have it in plenty, and there is nothing out-lasts it, or can be more beautifull, especially than the *Root* of the wilder sort, incomparable for its *crisped undulations*. Divers *Learned Persons* have conceiv'd the *Gopher* mention'd in holy *Writ*, *Gen.* 6. 14. and of which the *Ark* was built, to have been no other than this Κυπάρισσος, *Cupar* or *Cuper*, by the easie mutation of *Letters*; and beside, 'tis known that in *Creet* they employ'd it for the same *use* in the largest *contignations*, and did formerly build *Ships* of it: And *Epiphanius Hæres. l.* 1. tells us, some *Reliques* of that *Ark* lasted even to his dayes, and was judged to have been of *Cypresse*. Some indeed suppose that *Gopher* was the Name of a *Place* a *Cupressis*, as *Elon* a *Quercubus*; and might possibly be that which *Strabo* calls *Cupressetum* neer *Adiabens* in *Assyria*: But for the reason of its long lasting, *Coffins*, as noted, for the *dead* were made of it, and thence it first became to be *Diti Sacra*; and the *Valves* or Doors of the *Ephesine* Temple were likewise of it, as we observ'd but now were those of St. *Peters* at *Rome*: Works of *Cypresse wood*, *permanent ad diuturnitatem*, sayes *Vitruvius l.* 2. and the Poet

——*perpetuâ nunquam moritura Cupresso.*

Mart. *E.* 6. 6.

But to resume the disquisition, whether it be truly so proper for *Shipping* is controverted, though we also find in *Cassiodorus Var. l.5. Ep.* 16. that *Theodoric* caused store of it to be provided for that purpose; and *Plato* (who we told you made *Laws* and *Titles* to be *Engraven* in it) nominates it *inter Arbores ναυπηγείς utilis. l.4. leg.* and so does *Diodorus l.* 19. And as *Travellers* observe, there is no other sort of *Timber* fit for *Shipping*, so frequent as this *Tree* about those parts of *Assyria*, where the *Ark* is conjectur'd to have been built; so as those vast *Armadas* that *Alexander* the *Great* caus'd to be Equipp'd and set out from *Babylon*, consisted onely of *Cypresse*, as we learn out of *Arrian* in *Alex. l.* 7. and *Strabo l.* 16. *Paulus Colamenus* in his *λειμῶνα literaria cap.* 24. perstringes the most Learned *Is. Vossius*, that in his *Vindiciæ pro* LXX. *Interp.* he affirms *Cypresse* not fit for *Ships*: But besides what we have produc'd, *Fuller*, *Bochartus*, &c. *Lilius Gyraldus* (*lib. de Navig. c.* 4.) and divers others, sufficiently evince it, and that the *Vessel* built by *Trajan* was of that material; lasting uncorrupt near 1400 years, when it was afterwards found in a certain *Lake*; if it were not rather (as I suspect) that which *Æneas Silvius* reports to have been discovered in his time, lying under *Water* in the *Numician Lake*, crusted over with a certain feruginous mixture of Earth and Scales, as if it had been of *Iron*; but it was pronounc'd to be *Larix*, and not *Cypress*, employ'd by *Tiberius*. Finally (not to forget even the very *chips* of this precious *wood*, which gives that flavour to *Muscadines* and other rich *Wines*) I commend it for the improvement of the *Air*, and a *specific* for the *Lungs*, as sending forth most sweet, and *aromatick* emissions, when ever it is either *clipp'd*, or *handled*, and the *chips*, or *cones* being burnt, extinguishes *Moths*, and expells the *Gnats* and *Flies*, *&c.* not omitting the *Gum* which it yields, not much inferiour to the *Terbintine* or *Lentisc*. But,

Quid tibi odorato referam sudantia ligno,

if I forget

14. The *Cedar*? which grows in all *extreams*: In the moist *Barbados*, the hot *Bermudas*, the cold *New-England*; even where the *Snow* lyes as (I am assur'd) almost half the year: Why then it should not thrive in *Old England*, I conceive is from our want of *industry*: It grows in the *Bogs* of *America*, and in the *Mountains* of *Asia*; it seems there is no place affrights it; I have frequently rais'd it of the *Seeds*, which I set like the *Bay-berries*; and we might have of the very *best* kind in the *World* from the *Summer Islands*, though now almost utterly exhausted there also, and so the most incomparable of that *sacred wood* like to be quite *destroy'd* by our *negligence*, which is by nature almost *eternal*.

15. Thus I read that in the *Temple* of *Apollo* at *Utica*, there was found *Timber* of near *two thousand* years old; and in *Sagunti* of *Spain* a Beam in a certain *Oratory* consecrated to *Diana*, which had been brought from *Zant* two hundred years before the Destruction of *Troy*.

16. And here I cannot omit my *Wishes*, that since this precious *material*

material may be had at such tollerable rates, as certainly it might from *Cape Florida*, the *Bermudas*, and other parts of the *West Indias*: I say, I cannot but suggest, that our more Wealthy *Citizens* of *London*, now Building, might be encourag'd to *use* of it in their Shops; at least for *Shelves*, *Comptoires*, *Chests*, *Tables*, *Wainscot*, *&c.* It might be done with moderate Expense, especially, in some small proportions, and in *Faneering*, as they term it, and mouldings, since beside the everlastingnesse of the *wood* not obnoxious to the *Worms*, and which would also be a means to preserve *cloth*, and other *Ware* from *Moths* and *corruption*; it would likewise be a Cure to reform the Malignity and corrosiveness of the *Air*, and even preserve the whole *City* as if it stood amongst the *Spices* of the happy *Arabia*, or the prospects of *Mount Libanus*. *Note*, that the *Cedar* is of so dry a nature, that it will not well endure to be fastned with *Nails*, from which it usually shrinks, and therefore *pinns* of the same wood, are better.

17. The *Sittim* mention'd in holy *Writ*, is believ'd to have been a kind of *Cedar*, of which the most precious *Utensils* were formed; so that when they said a thing was *cedro digna*, the meaning was, *worthy of eternity*.

CHAP. XXV.

Of the Cork, Ilex, Alaternus, Phyllyrea, Granad, Lentisc, Myrtle, Jasmine, *&c.*

1. THe *Cork* [*Suber*] of which there are *two* sorts (and divers more in the *Indias*) one of a narrower lesse jagged leaf and *perenneal*; the other of a broader, falling in *Winter*; grows in the *coldest* parts of *Biscany*, in the *North* of *New-England*, in the *South-West* of *France*, especially the second *Species*, fittest for our *Climate*; and in all sorts of ground, dry *Heaths*, *Stony*, and *Rockie-Mountains*, so as the Roots will run even above the Earth where they have little to cover them; all which considered, methinks we should not despair: We have said where they grow plentifully in *France*; but by *Pliny*, *Nat. Hist. l.* 16. *c.* 8. it should seem they were since transplanted thither; for he affirms there were none either *there* or in *Italy*, in his time: But I exceedingly wonder that *Carolus Stephanus*, and *Crusius* should write so peremptorily, that there were none in *Italy*, where I my self have travell'd through vast *Woods* of them about *Pisa*, *Aquin*, and in divers tracts between *Rome* and the Kingdom of *Naples*. The *Spanish Cork* is a species of the *Enzina*, differing chiefly in the *Leaf*, *Cork.*

Leaf, which is not so *prickly*; and in the *bark*, which is frequently, four or five inches thick: The manner of *decortication* where-of is *once* in two, or three years to strip it in a dry season; otherwise, the intercutaneous *moisture* indangers the *Tree*; when the *bark* is off, they unwarp it before the *fire*, and presse it *even*, and *that* with weights upon the *convex* part, and so it continues being cold.

2. The uses of *Cork* is well known amongst us both at *Sea* and *Land* for its resisting both Water and Air: The *Fisher-men* who deal in *Nets*, and all who deal with *Liquors* cannot be without it: Antient Persons prefer it before *Leather* for the *soles* of their *Shooes*, being light, dry, and resisting moisture, whence the *Germans* name it *Pantoffel-holts* (Slipper-wood) perhaps from the *Greek* Παστὸς & φέλλος, for I find it first applied to that purpose by the *Grecian* Ladies, whence they were call'd *light-footed*; I know not whether the *Epithite* do still belong to that *Sex*; but from them its likely the *Venetian* Dames took it up for their monstrous *Choppines*; affecting, or usurping an artificial eminency above *Men*, which *Nature* has denied them. Of one of the sorts of *Cork* are made pretty *Cups*, and other *Vessels*, esteem'd good to drink out of for *Hectical* persons: The *Ægyptians* made their *Coffins* of it, which being lin'd with a *resinous* composition, preserv'd their *Dead* incorrupt: The poor People in *Spain* lay broad *Planks* of it by their Beds-side, to tread on (as great Persons use *Turkie* and *Persian* Carpets) to defend them from the *floor*, and sometimes they line, or *Wainscot* the Walls, and inside of their Houses built of Stone, with this *Bark*, which renders them very warm, and corrects the *moisture* of the Air: Also they employ it for *Bee-Hives*, and to double the insides of their *Contemplores*, and leather Cases wherein they put *Flasquera's* with *Snow* to refrigerate their *Wine*. This *Tree* has beneath the *Cortex* or *Cork*, two other *Coats*, or *Libri*, of which one is *reddish*, which they strip from the *bole* when 'tis fell'd onely; and this bears good price with the *Tanner*: The rest of the *wood* is very good firing, and applicable to many other uses of *Building*, *Palisade* work, *&c.*

Ilex. 3. *Ilex major glandifera* or great *Scarlet Oak*, thrives manifestly with us; witnesse His Majesties *Privy Garden* at *White-Hall*, where once flourish'd a goodly *Tree* of more than *fourscore* years growth, though there be now but a sickly *Impe* of it remaining.

4. By what I have touch'd in the *Chapter* of the *Elms*, concerning the *peregrination* of that *Tree* into *Spain* (where even in *Plinie's* time there were none, and where now they are in great abundance) why should we not more generally endeavour to propagate the *Ilex* amongst us; I mean, that *Baccifera*, which the *Spaniards* call the *Enzina*, and of which they have such *Woods*, and profitable Plantations? They are an hardy sort of *Tree*, and familiarly rais'd from the *Acorn*, if we could have them sound and well put up in *Earth* or *Sand*, as I have found by experience.

5. The *wood* of these *Ilex's* is serviceable for many *uses*, as *stocks* of

of *Tools*, *Mallet-heads*, *Mall-balls*, *Chairs*, *Axeltrees*, *Wedges*, *Beetles*, *Pins*, and above all for *Palisadoes* us'd in *Fortifications*. Besides, it affords so good *fuel*, that it supplies all *Spain* almost with the best and most lasting of *Charcoales*, in vast abundance. Of the *first* kind is made the Paynten *Lac* extracted from the *berries*; to speak nothing of that noble Confection *Alkermes*: The *Acorns* of the first yield excellent nourishment for *Rustics*, sweet, and little, if at all, inferiour to the *Chesse-nut*; and *this*, and not the *Fagus*, was doubtlesse the true *Esculas* of the *Antients*, the Food of the *Golden Age*. The *wood* of the *Enzina* when *old*, is curiously *chamblet-ted*, and embroidered with Natural *vermiculations* as if it were painted.

6. The *Alaternus*, which we have lately receiv'd from the hot- *Alaternus.*
test parts of *Languedoc* (and that is equal with the heat of almost any *Countrey* in *Europe*) thrives with us in *England*, as if it were an *Indigene* and *Natural*.

7. I have had the honour to be the first who brought it into *Use* and reputation in this *Kingdom* for the most beautiful, and useful of *Hedges*, and *Verdure* in the world (the *swiftnesse* of the *growth* consider'd) and *propagated* it from *Cornwall* even to *Cumberland*: The seed grows ripe with us in *August*; and the hony-breathing *blossomes*, afford an early, and mervellous relief to the *Bees*.

8. All the *Phillyrea's* are yet more *hardy*; which makes me *Phillyrea.*
wonder to find the *Angustifolia* planted in *Cases*, and so charily set into the *Stoves*, amongst the *Oranges* and *Lemmons*; when by long *experience*, I have found it equal our *Holly* in suffering the extreamest rigours of our cruellest *Frosts*, and *Winds*, which is doubtlesse (of all our *English* Trees) the most insensible and stout.

9. They are (both *Alaternus* and *this*) raised of the *Seeds* (though those of the *Phillyrea* will be long under ground) and being transplanted for *Espalier* hedges, or *Standards*, are to be govern'd by the *Shears*, as oft as there is occasion: The *Alaternus* will be up in one *Month* after it is sown: Plant it out at two years growth, and *clip* it after *rain* in the *Spring*, before it grows sticky, and whiles the shoots are tender; thus will it form an *hedge* (though planted but in single rows, and at two foot distance) of a yard in thickness, twenty foot high (if you desire it) and furnish'd to the bottom: But for an hedge of this altitude, it would require the friendship of some *Wall*, or a *Frame* of lusty *Poles*, to secure against the *Winds* one of the most delicious objects in nature: But if we could have store of the *Phillyrea folio leviter serrato* (of which I have rais'd some very fine *Plants* from the *Seeds*) we might fear no *weather*, and the *verdure* is incomparable.

10. The Culture of the *Granade* (of which are three sorts) *Granade.*
does little differ from that of the *Alaternus*, of which we might raise considerable *Hedges* on all our *Southern* Aspects: They have supported that most unmerciful *Winter* in *sixty three*, without any artifice;

artifice; and if they yield us their *flowers* for our pains of well *praning* and *Recision* (for they must diligently be purged of their *wood*) it is a glorious recompence: I plant them in my *Hedge-rows* even amongst the *Quick*; but to have them thrive, you must loosen the *Earth* at *Roots*, and inrich it both *Spring* and *Autumn*, leaving but a few woody branches: There is no *Tree* so *Adulterous* as this *Shrub*, and best by *Layers Approach* and *Inarching*, as they call it; and thence 'tis said to marry with *Lawrells*, *Damson*, *Ash*, *Almond*, *Mulberry*, *Citron*, &c. too many (I fear) to hold: If you will plant them in *Gardens* to best advantage, keep them to one *Stem*, and inrich the *mould* with *Hogs dung* well consum'd; which they greatly delight in.

Myrtil. 11. The vulgar *Italian* wild *Myrtil* (though not indeed the most *fragrant*) grows high, and supports all *weathers*. I know of *one* near *fifty* years old, which has been continually *expos'd*; unless it be, that in some exceeding *sharp* Seasons, a little dry *straw* has been thrown upon it; and where they are *smitten*, being cut down near the ground, they put forth and recover again; which many times they do not in *Pots*, and *Cases*, where the *Roots* are very obnoxious to perish with *mouldiness*. The shelter of a few *Mats*, and *Straw*, secur'd very great Trees (both leaf and colour in perfection) this last Winter also, which were planted *abroad*; whiles those that were carried into the *Conserve*, were most of them lost. *Myrtils* may be rais'd of *Seeds*, but with great caution; and they seldom prove hardy, nor is it worth the time, being so abundantly encreased of *Layers*.

Lentisc. 12. *Lentiscus*, the *Lentisc*, a very beautiful *ever-green*, will thrive abroad with us, with a little care and shelter, amongst other expos'd Shrubs, and may be propagated of *Suckers* and *Layers*; and the like may be done by the *Olive*, though it bear no other *Fruit* than the perennial verdure of the *leaves*: Of the *Lentisc* are made the best *Tooth-pickers* in the world, and the *Mastic*, or *Gum* is of excellent *use*, especially for the *Teeth* and *Gums*.

13. I might to these add *Lignum vitæ*, the *Æthiopic Seseli*, *Halimus Latifolius*, *Laurus Tinus*, *Celastrus*, *&c.* fittest for the *Shrubby* part and under-furniture of our ever green *Groves*, and near our *Gardens* of Pleasure. But

14. I produce not these *particulars*, and other *amœna vireta* already mention'd, as signifying any thing to *Timber*, the main design of this *Treatise* (though I read of some *Myrtils* so *tall*, as to make *Spear-shafts*) but to *exemplifie* in what may be farther added to *Ornament* and *Pleasure*, by a cheap, and most agreeable *industry*. The *Berries* of *Myrtil* were us'd of old in stead of *Peper*.

Jasmine. 15. The common *white* and *yellow Jasmine* would *flower* plentifully in our *Woods*, and as hardy as any of the *Periclimena*: How it is propagated by *submersion*, or *layers*, every *Gard'ner* skills; and if it were as much imploy'd for *Nose gays*, *&c.* with us, as it is in *France* and *Italy*, they might make *money* enough of the *Flowers*: One sorry Tree in *Paris*, where they abound, has been worth to a poor *Woman* near *twenty* shillings in a year. CHAP.

CHAP. XXVI.

Of the Acacia, Arbutus, Bays, Box, Yew, Holly, Juniper, *and* Laurel-trees.

Acacia.

1. THe *French* have lately brought in the *Virginian Acacia*, which exceedingly adorns their *Walks*: The Tree is hardy against all the invasions of our sharpest seasons, but our high *Winds*; which by reason of its brittle nature it does not so well resist; and the *Roots* (which insinuate and run like *liquorize* under ground) are apt to *emaciate* the *Soil*, and therefore haply not so commendable in our *Gardens*, as they would be agreeable for variety of *Walks* and shade: They thrive well in his *Majesties* new *Plantation* in St. *James*'s Park.

Arbutus.

2. But why do we thus neglect the *Arbutus*, and make that such a *rarity*, which grows so common, and so naturally in *Ireland*? It is indeed with some difficulty rais'd from the *Seeds*; but it may be propagated from the *Layers*, grows to a goodly Tree; is patient of our severest Weather, and may be contriv'd into most beautiful *Hedges*: *Virgil* reports it will *inoculate* with the *Nut*; and I find *Bauhinus* commends the *Coals* for *Gold-smiths* works, and the *Poet*

Arbutean *Harrows* and the mystic *Van.* *Arbutea crates, & mystica Vannus Jacchi.* Georg. 1.

Bays.

3. *Bays* are encreas'd both of their *Suckers*, and *Seeds*, which should be *dropping-ripe* ere gather'd: *Pliny* has a particular *process* for the ordering of the *Seeds*, and it is not to be rejected: Which is, the gathering the *Berries*, in *January*, and spreading them till their sweat be over; then he puts them in *dung* and sows them: As for the steeping in *Wine*, *Water* does altogether as well; others wash the *seeds* from their *mucilage*, by breaking and bruising the glutinous *berries*; then sow them in *March* by scores in a heap; and indeed so they will come up in *clusters*, but nothing so well, nor fit for *transplantation*, as where they are *interr'd* with a competent scattering, so as you would furrow *Pease*: Both this way, and by setting them apart (which I most commend) I have rais'd multitudes, and that in the *Berries* without any farther *preparation*; onely for the first two years they would be defended from the piercing *winds* which frequently destroy them; and yet the scorching of their tender *leaves* ought not make you despair, for many of them will recover beyond expectation.

4. This *aromatic* Tree greatly loves the *Shade*, yet thrives best in our hottest *gravel*, having once pass'd those first difficulties: *Age* and *Culture* about the Roots wonderfully augment its growth; so as I have seen *Trees* near thirty foot high of them; and almost two foot *diameter*. They are fit also both for *Arbour* and *Palisade-work*, so the *Gard'ner* understand when to prune, and keep it from growing two *woody*.

Box. 5. The *Box* which we begin to *proscribe* our *Gardens* (and indeed *Bees* are no friend to it) should not yet be banish'd from our care; because the excellency of the *wood* does commute for the unagreeableness of its smell: therefore let us furnish our cold, and barren *Hills*, and declivities with this useful *Shrub*, I mean the *taller* sort, for I meddle not here with the *dwarf* and more *tonsile*; It will increase abundantly of *slips* set in *March*.

6. The *Turner*, *Ingraver*, *Carver*, *Mathematical-Instrument*, *Comb* and *Pipe-makers* (*Si buxos inflare juvat*—— Virg.) give great prizes for it by *weight*, as well as measure; and by the *seasoning*, and divers manner of *cutting*, vigorous *insolations*, *politure* and *grinding*, the Roots of this *Tree* (as of even our common and neglected *Thorne*) do furnish the *Inlayer* and *Cabinet-makers* with pieces rarely *undulated*, and full of variety. Also of *Box* are made *Wheels* or *Shivers* (as our *Ship-Carpenters* call them) and *Pinns* for *Blocks* and *Pullies*; *Pegs* for *Musical Instruments*, *Nut-crackers*, *VVeavers Shuttles*, *Hollar-sticks*, *Bump-sticks*, and *Dressers* for the *Shooe-maker*, *Rulers*, *Rolling-pins*, *Pestles*, *Mall-balls*, *Beetles*, *Topps*, *Tables*, *Chess-men*, *Skrews* male and female, *Bobins* for *Bone-lace*, *Spoons*, nay the stoutest *Axle-trees*; but above all,

——*Box-Combs* bear no small part
In the *Militia* of the *Female Art*;
They tye the *Links* which hold our *Gallants* fast,
And spread the *Nets* to which fond *Lovers* hast.

——*Non ultima belli*
Arma Puellaris; *Laqueos hæc nectit Amantûm*,
Et venatricis dispenit retia Formæ.

Couleii *Pl. l. 6*

7. The *Chymical* oyl of this *wood* has done the feats of the best *Guajacum* (though in greater quantity) for the Cure of *Venereal* Diseases, as one of the most expert *Physicians* in *Europe* has confess'd.

Eugh. 8. Since the use of *Bows* is laid aside amongst us, the propagation of the *Eugh-tree* (of which we have two sorts, and other places reckon more, as the *Arcadian* black, and red; the yellow of *Ida*, infinitely esteem'd of old) is likewise quite forborn; but the neglect of it is to be deplor'd; seeing that (besides the rarity of it in *Italy*, and *France*, where but little of it grows) the barrenest grounds, and coldest of our Mountains (for

——*Aquilonem & frigora taxi*) might be profitably repleniish'd with them: I say, profitably, for, besides the use of the *wood* for *Bows*

——*Ityræos taxi torquentur in arcus.* (for which the close, and more deeply dy'd is best.) The forementioned *Artists* in

in *Box* most gladly imploy it: And for the *Cogs* of *Mills*, *Posts* to be set in moist grounds, and everlasting *Axle trees*, there is none to be compar'd with it; likewise for the bodies of *Lutes*, *Theorbas*, *Bowles*, *VVheels*, and *Pinns* for *Pullys*; yea, and for *Tankards* to drink out of; whatever *Pliny* report concerning its *Shade*, and the stories of the Air about *Thasus*, the Fate of *Cativulcus* mention'd by *Cæsar*, and the ill report which the *Fruit* has vulgarly obtain'd in *France*, *Spain*, and *Arcadia*; But,

How are poor Trees abus'd! *Quàm multa Arboribus tribuuntur crimina falsa!*

9. The *Toxic* quality was certainly in the *Liquor* which those good *Fellows* tippl'd out of those Bottles, not in the *nature* of the *wood*; which yet he affirms is cur'd of that *Venenous* quality, by driving a *brazen-wedge* into the Body of it: This I have never tri'd, but that of the *Shade* and *Fruit* I have frequently, without any deadly, or noxious effects: so that I am of opinion that *Tree* which *Sestius* calls *Smilax*, and our *Historian* thinks to be our *Eugh*, was some other *wood*; and yet I acknowledge that it is esteem'd noxious to *Cattel*, when 'tis in the *Seeds*, or newly sprouting.

10. This *Tree* is easily produc'd of the *Seeds*, wash'd and cleans'd from their *mucilage*; and buried in the ground like *Haws*; It will commonly be the second *VVinter* ere they peep, and then they rise with their *caps* on their *heads*: Being three years old you may *transplant* them, and form them into *Standards*, *Knobs*, *VValks*, *Hedges*, *&c.* in all which works they succeed marvellous well, and are worth our patience for their *perennial verdure*, and *durableness*.

11. He that in *winter* should behold some of our highest *Hills* in *Surrey* clad with whole *Woods* of these two last sort of *Trees*, for divers Miles in *circuit* (as in those delicious *Groves* of them, belonging to the *Honourable*, my noble Friend Sir *Adam Brown* of *Bech-worth-Castle*, from *Box-hill*, and neer our famous *Mole* or *Swallow*) might without the least violence to his *Imagination*, easily phansie himself transported into some new or enchanted *Country*; for, if any *spot* of *England*,

——'Tis here Eternall *Spring*, and *Summer* all the year. *Hîc ver perpetuum, atque alumnis mensibus æstas.*

12. But, above all the natural *Greens* which inrich our *home-born* store, there is none certainly to be compar'd to the *Agrifolium*, or *Acuifolium* rather, our *Holly*, insomuch as I have often wonder'd at our *curiosity* after forreign Plants, and expensive *difficulties*, to the neglect of the *culture* of this *vulgar*, but *incomparable* tree; whether we will propagate it for *Use*, and *Defence*, or for *sight* and *Ornament*. *Holly.*

A Hedge of *Holly*, Thieves that would invade,
Repulses like a growing *Palizade*;
Whose numerous leaves such *Orient Greens* invest
As in deep *Winter* do the *Spring* arest.

——*Mala furta hominum densis mucronibus arcens*
Securum defendit inexpugnabilis Hortûm;
Exornátque simul, toto spectabilis anno,
Et numero & viridifoliorum luce nitentum.
Couleii Pl. l. 6.

13. Is there under *Heaven* a more glorious and refreshing object of the kind, than an impregnable *Hedge* of *one hundred* and *sixty foot* in *length*, *seven* foot *high*, and *five* in *diameter*, which I can shew in my poor *Gardens* at any time of the year, glitt'ring with its arm'd and vernish'd *leaves*? the taller *Standards* at orderly distances blushing with their natural *Coral*: It mocks at the rudest assaults of the *Weather*, *Beasts*, or *Hedge-breakers*,

Et illum nemo impunè lacessit.

It is with us of *two* eminent kinds, the *prickly*, and *smoother leav'd*, or as some term it, the *Free-holly*, not unwelcome when tender, to *Sheep*, and other *Cattel*.

14. I have already shew'd how it is to be rais'd of the *Berries* (of which there is a sort bears them *yellow*) when they are ready to drop, this onely omitted, that they would first be freed from their tenacious and glutinous *Mucilage* by being wash'd, and a little bruised, then dry'd with a Cloth; or else bury them as you do *Hipps*; and let our *Forester* receive *this* for no common secret, and take notice of the effect: Remove them also after three or four years; but if you plant the *Sets* (which is likewise a commendable way, and the *Woods* will furnish enough) place 'em *Northwards*, as they do *Quick*. Of *this* might there living *Pales* and Enclosures be made (such as the Right Honourable my Lord *Dacres*, somewhere in *Sussex*, has a *Park* almost environ'd with, able to keep in any *Game*, as I am credibly inform'd) and cut into *square Hedges*, it becomes impenetrable, and will thrive in *hottest* as well as the *coldest* places. I take thousands of them four inches long out of the *Woods* (amongst the fall'n leaves whereof, they sow themselves) and so Plant them; but this should be before the *Cattel* begin to crop them, especially *Sheep*, who are greedy of them when tender: Stick them into the ground in a *moist* season, *Spring*, or *Autumn*; especially the *Spring*, shaded (if it prove too hot and scorching) till they begin to shoot of themselves, and in very sharp Weather, and during our *Eastern Etesians*, cover'd with *dry straw* or *Haume*; and if any of them seem to perish, cut it close, and you shall soon see it revive. The lustyer and bigger the *Sets* are, the better, and if you can procure such as are a Thumbs-breadth thick, they will soon furnish into an *Hedge*. At *Dengeness* in *Kent* they grow naturally amongst the very *beach* and *pibbles*: And this rare *Hedge*, the boast of my *Villa*, was planted upon a *burning* Gravel, expos'd to the *meridian* Sun.

15. True it is, that *time* must bring this *Tree* to perfection; it does so to all things else, *& posteritati pangimus*. But what if a little *culture* about the *Roots* (not *dunging*, which it abhors) and frequent stirring of the *mould* doubles its growth? We stay *seven years* for a tolerable *Quick*, it is worth staying it *thrice* for *this*, which has no *Competitor*.

16. And yet there is an expedient to effect it more insensibly, by planting

planting it with the *Quick* : Let every *fift* or *fixt* be an *Holly-set*, they will grow up infallibly with your *Quick*, and as *they* begin to spread, make way for them, by extirpating the *White-thorn*, till they quite domineer : Thus was my *Hedge* first Planted, without the least interruption to the *Fence*, by a most pleasant *Metamorphosis*. But there is also another, not lesse applauded, by laying along of well rooted *Sets* (a yard or more in length) and stripping off the *leaves* and *branches* : these cover'd with a competent depth of earth, will send forth innumerable *Suckers*, which will suddenly advance into an Hedge.

17. The *Timber* of the *Holly* (besides that it is the *Whitest* of all hard *woods*, and therefore us'd by the *In-layer*, especially, under thin plates of *Ivory* to render it more conspicuous) is for all sturdy *uses*; the *Mill-Wright*, *Turner* and *Engraver* prefer it to any other : It makes the best *handles*, and *stocks* for *Tools*, *Flayles*, *Riding-rods* the best, and *Carters whips*; *Bowles*, *Shivers*, and *pins* for *Blocks*; Also it excels for *Dore-bars* and *bolts*; and as of the *Elme*, so of this especially, they made even *hinges* and *hooks* to serve instead of Iron, and of the *Bark* is compos'd our *Bird-lime*.

18. Pill a good quantity of the *Bark* about *Midsommer*, fill a *Vessel* with it, and put to it *Spring-water*; then boyle it, 'till the *grey* and *white bark* rise from the *green*, which will require neer 12 hours boyling; then taking it off the *fire*, separate the *barks*, the *water* first well drained from it : Then lay the *green bark* on the *Earth* in some coole *Vault* or *Cellar*, covering it with any sort of green and rank *weeds*, such as *Dock*, *Thistles*, *Hemlock*, *&c.* to a good thickness : Thus let it continue neer a *fort-night*, by which time 'twill become a perfect *mucilage*: then pound it all exceedingly in a stone *mortar* 'till it be a tough *past*, and so very fine, as no part of the *bark* be discernable : This done, *wash* it accurately well in some running stream of Water, as long as you perceive the least *ordure* or motes in it, and so reserve it in some *earthen* pot to purge and *ferment*, scuming it as often as any thing arises for four or five days, and when no more *filth* comes, change it into a *fresh* Vessel of earth, and reserve it for use, *Thus* : Take what quantity you please of it, and in an earthen *pipkin* add a *third* part of *Capons* or *Goose-grease* to it, well clarified; or *Oyle* of *Walnuts* which is better : Incorporate these on a gentle *fire*, continually stirring it 'till it be *cold*, and thus your *Composition* is finish'd. But to prevent *Frosts* (which in severe weather will sometimes invade it on the *Rods*) take a quarter of as much *Oyle* of *Petrolium* as you do of *Grease*, and no cold whatever will congeale it. The *Italians* make their *Vischio* of the *Berries* of the *Misselto* of *Trees*, treated much after the same manner, but then they mix it with *Nut-Oyle* an *ounce* to a *pound* of *Lime*, and taking it from the fire, add half an *ounce* of *Terpentine* which qualifies it also for the *Water*. Great quantities of *Bird-lime* is brought to us out of *Turky*, and from *Damascus*, which some conceive to be made of *Sebestens*, finding sometimes the kernels : This *lime* is of a greener colour, subject to *Frosts*, and impatient of *Wet*, nor will

will last above a *year* or two good: Another sort comes also out of *Syria* of a *yellow* hue; Likewise from *Spain*, whiter than the rest, will resist the *water*, but is of an ill sent. I have been told that the *Cortex* of our *Lantona* or *Wayfaring* shrub, will make as good *Bird-lime* as the best. But, let these suffice, being more than as yet, any one has publish'd. The superiour *Leaves* of *Holly-Trees* dry'd to a fine *powder*, and drunk in *White-wine* is prevalent against the *Stone*, and cures *Fluxes*; and a dozen of the mature *Berries* being swallow'd, purge *Phlegme* without danger.

Juniper. 19. Of *Juniper* we have *three sorts*, (Male, Female, Dwarf) whereof *one* is much taller, and more fit for Improvement: The *wood* is *yellow*, and *sweet* as *Cedar*, whereof it is accounted a *spurious* kind.

20. I have rais'd them abundantly of their *seeds* (neither *watring* nor *dunging* the *soile*) which in two moneths will peep, and being govern'd like the *Cypress*, apt for all the employments of that beautiful Tree: To make it grow *tall*, *prune* and clense it to the very *stem*, the *male* best. The discreet loosening of the *Earth* about the *Roots* also makes it strangely to prevent your expectations by suddenly spreading into a *bush* fit for a thousand pretty Employments; for coming to be much unlike that which grows *wild*, and is subject to the treading and cropping of *Cattle*, *&c.* it may be form'd into most beautiful and useful *Hedges*: My *Brother* having cut out of one onely *Tree* an *Arbour* capable for *three* to sit in: It was at my last measuring *seven* foot square, and *eleven* in height; and would certainly have been of a much greater altitude and farther spreading, were it not continually kept *shorn*: But what is most considerable is the little time since it was *planted*, being yet hardly *ten years*, and then it was brought out of the *Common* a slender *Bush* of about *two foot* high: But I have experimented a proportionable improvement in my own *Garden*, where I do mingle them with *Cypresse*, and they perfectly become their stations. I wonder *Virgil* should condemn its shadow, I suspect him mis-reported: For,

21. The *Berries* afford (besides a tolerable *Pepper*) one of the most universal *Remedies* in the world to our crazy *Forrester*; The *Berry* swallow'd onely, instantly appeaseth the *Wind-Collique*, and in decoction most *soveraign* against an inveterate *Cough*: They are of rare effect being steeped in *Beer*. The *Water* is a most singular *specifique* against the *Gravel* in the *Reins*; But all is comprehended in the virtue of the *Theriacle* or *Electuary*, which I have often made for my poor *Neighbours*, and may well be term'd the *Forresters Panaëa* against the *Stone*, *Rheume*, *Ptisic*, *Dropsie*, *Jaundies*, inward *Impostumes*, nay, *Palsie*, *Goute* and *Plague* it self taken like *Venice-Treacle*. Of the extracted *Oyle* (with that of *Nuts*) is made an excellent good *Vernish* for *Pictures*, for *Wood-work*, and to preserve *polish'd Iron* from the *rust*. The *Gum* is good to rub on *parchment* to make it bear *Ink*, and the *Coals*, which are made of the *Wood*, endure the longest of any. See Saint *Hierom. ad Fabiolam* upon that expression *Psal.* 120. *v.* 4. If it arrive to full growth

growth it is *Timber* for many curious works; for *Tables*, *Chests*, small *Carvings* and *Images*, *spoons*, wholesome to the *mouth*; *spits* to roast *meat* on, to which it gives a rare *taste*, but it should be old and dry wood; nay, I read of some large enough for *beams* and *rafters*. The very *Chips* render a wholesom *perfume* within doors, as well as the dusty *blossoms* in *Spring* without.

22. And since we now mention'd *Pepper*, it is by the most prudent, and princely care of his *Majesty* that I am assur'd of a late solemn *Act* of *Councel*, enjoyning the preserving of that incomparable *Spice* which comes to us from *Jamaica* under that *denomination*; though in truth it be a mixture of so many *Aromatics* in *one*, that it might as well have been call'd *Cinnamon*, *Nutmeg* or *Mace*, to every of which it seems something *alied*: And that there is not onely prohibited the destruction of these *Trees* (for it seems some *Prodigals* us'd to cut them down for the more easie gathering) but order taken likewise for their *propagation*, and that *Assays* and *Samples* be from time to time sent over, what other *Fruits*, *Trees*, *Gums* and *Vegetables* may there be found, and which I prognostick will at last also incite his *Majesty*, and the *Planters* there to think of procuring *Cinnamon*, *Cloves* and *Nutmeg-trees* indeed from the *East-Indias*, and what other useful *Curiosities* will not approach our *Northern Beare* (and that are *incicurabiles* amongst us) and to plant them in *Jamaica*, and other of his *Majesties Western Islands*, a more safe and frugal expedient to humble our *emulous* Neighbours; since there is nothing in their *Situation*, or defect of *Natures* benignity, which ought in the least to discourage us: And what if some of the *Trees* of those *Countrys* (especially such as aspire to be *Timber*, and may be of improvement amongst us) were more frequently brought to *us* likewise here in *England*; since we daily find how many rare *Exotics* and strangers with little care, become *endenizon'd*, and so contented to live amongst us, as may be seen in the *Platanus*, *Constantinople-Chess-nut*, the greater *Glandiferos Ilex*, *Cork*, *Nux Vesicaria* (which is an hard Wood fit for the *Turner*, &c.) the *Styrax*, *Bead tree*, the famous *Lotus*, *Virginian Acatia*, *Guaicum Patavinum*, *Paliurus*, *Cypress*, *Pines*, *Fir*, and sundry others, which grow already in our *Gardens* expos'd to the *Weather*; and so doubtless would *many* more: So judiciously observ'd is that of the learned *Author* of the *History* of the *Royal Society*, *Part.* 3. *Sect.* 28. 'That whatever attempts of this nature 'have succeeded, they have redounded to the great advantage of 'the *Undertakers*. The *Orange* of *China* being of late brought into '*Portugal*, has drawn a great *Revenew* every year from *London* 'alone. The *Vine* of the *Rhene* taking root in the *Canaries*, has 'produc'd a far more delicious juyce, and has made the Rocks and 'Sun-burnt Ashes of those *Islands*, one of the richest spots of '*Ground* in the *World*. And I will also instance in that which is 'now in a good forwardnesse: *Virginia* has already given Silk for 'the cloathing of our *King*; and it may happen hereafter to give '*Cloathes* to a great part of *Europe*, and a vast Treasure to our *Kings*:

'*Kings*: If the *Silk-worms* shall thrive *there* (of which there seems 'to be no doubt) the profit will be inexpressible. We may guess 'at it, by considering what numbers of *Caravans*, and how many 'great *Cities* in *Persia* are maintain'd by that *Manufacture* alone, 'and what mighty *Customs* it yearly brings unto the *Sophi's* Reve-'new. Thus *He*; And to return to that of *Trees* and *Plants*, the Industry we have recommended, would questionless in lesse than halfe an *Age* produce us *wonders*, by introduction, if not of quite *different*; yet of *better kinds*, and such *variety* for pulchritude and *sweetnesse*; that when by some Princely *Example*, our late *Pride*, *Effeminacy* and *Luxurie* (which has to our vast *charges* excluded all the *Ornaments* of *Timber*, *&c.* to give place to *Hangings*, *Embroderies* and forrain *Leather*) shall be put out of Countenance, we may hope to see a *new face* of things for the encouragement of *Planters*, the more *immediate* Work of *Gods* hands; and the natural, wholesome, and ancient *use* of *Timber*, for the more *lasting occasions* and *furniture* of our *Dwellings*: And though I do not speak all this for the sake of *Joyne-stools*, *Benches*, *Cup-boards*, *Massy Tables* and Gygantic *Bed-steds*, the hospitable *Utensils* of our fore-*Fathers*; Yet I would be glad to encourage the *Carpenter* and the *Joyner*, and rejoyce to see, that their *Work* and *Skil* do dayly improve; and that by the *Example* and application of his *Majesties Universities*, and *Royal Society* the *Restauration* and *Improvement* of *Shiping*, *Mathematical* and *Mechanical* Arts, the *use* of *Timber* grows dayly in more reputation: And it were well if *Great Persons* might only be indulg'd to inrich and adorn their *Palaces* with *Tapistry*, *Damask*, *Velvet*, and *Persian* furniture, whilst by some wholesom *Sumptuary* Laws, the universal excess of those Costly and *Luxurious Moveables* were prohibited meaner Men, for divers *politic* Considerations and Reasons which it were easie to produce; but by a lesse influence than *severer Laws*, it will be very difficult, if not altogether impossible, to recover our selves from a *softnesse* and *vanity* which will in time not onely *effeminate*, but undo the *Nation*.

Laurel. 23. But to *Crown* all, I will conclude with the *Laurel*, which by the *Use* we commonly put it to, seems as if it had been only destin'd for *Hedges*, and to cover bare *Walls*; whereas, being planted *upright*, and kept to the *Standard*, by cutting away the collateral *Branches*, and maintaining one *stem*, it will rise to a very considerable *Tree*; and (for the first twenty years) resembling the most beautiful headed *Orange* in *shape* and *verdure*, arrive in time to emulate even some of our lusty *Timber-trees*; so as I dare pronounce the *Laurel* to be one of the most proper, and ornamental Trees for *Walks* and *Avenues* of any growing.

24. Pity it is they are so abus'd in the *Hedges*, where the lower Branches growing *stickie* and *dry*, by reason of their frequent and unseasonable *cutting* (with the *genius* of the *Tree*, which is to spend much in wood) they never succeed after the first *six* or *seven* years; but are to be new *planted* again, or abated to the very *Roots* for a fresh *shote*.

25. But

25. But would you yet improve the *Standard* which I celebrate, to greater and more speedy exaltation? bud your *Laurel* on the *Black-Cherry stock* to what height you please; if at least the report be true, which I had from an ocular testimony, and am now making an essay of, because I am more then somewhat doubtful of such *Allyances*, though something like it in *Palladius* speaks it not so impossible;

A *Cherry* Graft on *Laurel*-stock does stain
The Virgin Fruit in a deep double grain.

Inseritur lauro Cerasus, partúque coacto
Tingit adoptivus virginis ora pudor

26. They are rais'd of the *Seeds* or *Berries* with extraordinary facility, or propagated by *Layers Taleæ*, and *cuttings* where-ever there is shade and moisture. I find little concerning the *Mechanical uses* of the *Laurel*; but than its *Attributes* of *old* there was nothing more glorious and magnificent; For,

From *Laurel* chew'd the *Pythian Priestess* rose,
Events of future Actions to disclose.
Laurel Triumphant Generals did wear,
And *Laurel* Heralds in their hands did bear:
Poets ambitious of unfading praise,
Phœbus, the *Muses* all are crown'd with *Bays*.
And *Vertue* to her sons the *Prize* does name
Symbol of *Glory*, and immortal *Fame*.

Tu sacros Phœbi tripodas, ta Sidera sentis,
Et casus aperis rerum præsaga futuros.
Te juvat armorum strepitus, clangorque Tubarum:
Perque acies medias, sævique pericula belli,
Accendis bellantum animos; te Cynthius ipse,
Te Musæ, Vatesque sacri optavêre Coronam:
Ipsa suis Virtus te spem proponit alumnis,
Tantùm servatus valuit pudor, & bona fama.

Rapinus.

I have now finish'd my *Planting*: A word or two concerning their *Preservation*, and the *Cure* of their *Infirmities*.

CHAP. XXVII.

Of the Infirmities of Trees.

Infirmities.

THe *Diseases* of *Trees* are various, according to the Rustick *Rhyme*,

The Calf, *the* Wind-shoc *and the* Knot,
The Canker, Scab, Scurf, Sap *and* Rot.

Affecting the several *parts*: These invade the Roots; *Weeds*, *Suckers*, *Fern*, *Wet*, *Mice*, *Moles*, *Winds*, *&c.* to these may be added *Siderations* and even *Plagues*, *Tumors*, *Distortions*, *Lacrimations*, *Tophi*, *Goutes*, *Carbuncles*, *Ulcers*, *Crudities*, *Fungosities*, *Gangreens*, and an *Army* more, whereof some are hardly discernable; yet *Enemies*, which not *foreseen*, makes many a bargain of *standing wood* (though seemingly *fair*) very costly *ware*.

1. *Weeds* are to be diligently pull'd up by hand after *Rain*, whiles your *Seedlings* are very young, and till they come to be able to kill them with *shade* and *over-dripping*: And then are you for the *obstinate* to use the *Haw*, *Fork*, and *Spade*, to extirpate *Dog-grass*, *Bear-bind*, &c.

2. *Suckers* shall be duly *eradicated*, and with a sharp *spade*

dexterously separated from the *Mother-roots*, and Transplanted in convenient places for *propagation*, as the *Season* requires.

3. *Fern* is best destroy'd by *striking* off the *Tops*, as *Tarquin* did the *heads* of the *Poppies*: This done with a good *wand* or *cudgel*, at the *decrease* in the *Spring*, and now and then in *Summer*, kills it in a *year* or *two* beyond the vulgar way of *Mowing*, or *burning*, which rather encreases than diminishes it.

4. Over-much *Wet* is to be drain'd by *Trenches*, where it infests the *Roots* of such kinds as require drier ground: But if a *drip* do fret into the body of a *Tree* by the head (which will certainly decay it) cutting first the place smooth, *stop* and cover it with *loam* and *hay* till a new *bark* succeed. These infest the Bark; *Bark-bound*, *Teredo*, or Worm, *Conys*, *Moss*, *Ivy*, &c.

5. The *Bark-bound* are to be released by drawing your *knife* rind-deep from the *Root*, as far as you can conveniently; and if the *gaping* be much, filling the *rift* with a little *Cow-dung*; do this on each side, and at *Spring*, *February* or *March*; also cutting off some *branches* is profitable; especially such as are *blasted* or *lightning*-struck.

6. The *Teredo*, *Cossi*, and other *Worms*, lying between the *Body* and the *Bark*, poyson that passage to the great prejudice of some *Trees*; but the *holes* being once found, they are to be taken out with a light *Incision*; and the *Wood pecker*, and other *Birds* often pitching upon the *stem*, as you may observe them, and knocking with their *bils*, is a mark that the *Tree* is infected, at least, between the *Bark*.

7. *Conies* and *Hares* by barking the *Trees* in hard *Winters*, spoil very many tender *Plantations*: Next to the utter destroying them, there is nothing better then to anoint that part which is within their reach, with *stercus humanum*, tempered with a little *Water* or *Urine*, and lightly *brushed* on; this renewed after every great *Rain*: But a *cleanlier* than this, and yet which *Conies*, and even *Cattel* most abhor, is to water, or sprinkle them with *Tanners Liquor*, *viz.* That, which they use for dressing their *hides*.

8. *Moss* is to be rubb'd and scrap'd off with some fit instrument of *Wood*, which may not *excorticate* the *Tree*, or with a piece of *Hair-cloth* after a sobbing *Rain*: But the most infallible Art of *Emuscation* is taking away the *cause*, which is superfluous *moisture* in *clayie* and spewing grounds.

9. *Ivy* is destroy'd by diging up the *Roots*, and loosning its hold: And yet even *Ivy* it self, the destruction of many fair *Trees*, if very *old*, and where it has long invested its support, if taken off, does frequently kill the *Tree*, by a too suddain exposure to the un-accustom'd cold: Of the *Roots* of *Ivy* (which with small Industry, may be made a beautiful Standard) are made curiously polish'd and fleck'd *cups* and *boxes*, and even *Tables* of great value. *Mistleto* and other *Excrescences* to be cut and broken off. But the *Fungi* (which prognosticate a fault in the *Liver* and *Entrails* of *Trees* as we may call it) is remedied by *Abrasion*, *Friction*, *Interlucation* and exposure to the *Sun*.

10. The

10. The *Bodies* of *Trees* are visited with *Canker*, *Hollowness*, *Hornets*, *Earwigs*, *Snails*, &c.

11. The *Wind-shock* is a *bruise* and *shiver* throughout the *Tree*, though not constantly *visible*, yet leading the *Warp* from smooth renting; caused by over-powerful *Winds*, when young, and perhaps, by subtil *Lightnings*: The best prevention is *shelter*, choyce of *place* for the Plantation, frequent *shreading* whilst they are yet in their youth.

12. *Cankers* (caused by some stroak or galling) are to be *cut* out to the *quick*, the scars *emplaistred* with *Tar* mingled with *Oil*, and over that a thin spreading of *loam*; or else with *clay* and *Horse-dung*; but best with *hogs-dung* alone, bound to it in a rag: or by laying *Wood-ashes*, *Nettles*, or *Fern* to the roots, *&c.* But if the *Gangreen* be within, it must be cured by *nitrous*, *sulphureous* and drying applications, and by no means, by any thing of an *unctious* nature, which is exitial to *Trees*. *Tar* as was said, onely excepted, which I have experimentally known to preserve *Trees* from the envenom'd teeth of *Goats*, and other injuries; the intire *stem* smar'd over, without the least prejudice to my no small admiration.

13. *Hollowness* is contracted, when by reason of the ignorant or careless *lopping* of a *Tree* the wet is suffer'd to fall *perpendicularly* upon a part, especially the *Head*: In this case if there be sufficient sound *wood*, cut it to the *quick* and close to the body, and cap the *hollow* part with a *Tarpaulin*, or fill it with good stiff *loam*, and fine *hay* mingled. This is one of the worst of *Evils*, and to which the *Elm* is most obnoxious.

14. *Hornets* and *Wasps*, *&c.* by breeding in the hollowness of *Trees* infect them, and are therefore to be destroy'd by stopping up their entrances with *Tar* and *Goose-dung*, or by conveying the fumes of *brimstone* into their *Cells*.

15. *Earwigs* and *Snails* do seldom infest *Forest-trees*, but those which are *Fruit-bearers*, and are destroy'd by enticing them into sweet waters, and by picking the *Snails* off betimes in the *Morning*, and rainy *Evenings*: I advise you to visite your *Cypresse-Trees* on the first *Rains* in *April*; you shall sometimes find them cover'd with young *snailes* no bigger than small *pease*: Lastly, *Branches*, *Buds*, and *Leaves* extreamly suffer from the *Blasts*, *Jaundies*, and *Caterpillars*, *Rooks*, &c.

16. The *blasted* parts of Trees are to be *cut* away to the *quick*; and to prevent it, *smoak* them in suspicious *weather*, by burning *moist straw* with the *wind*, or rather the dry and superfluous *cuttings* of *Aromatic* plants, such as *Rosemary*, *Lavender*, *Juniper*, *Bays*, &c. I use to whip, and chastise my *Cypresses* with a *wand*, after their *Winter-burnings*, 'till all the *mortified* and *scorch'd* parts flie off in *dust*, as long almost as any will *fall*, and observe that they *recover* and spring the better. *Mice*, *Moles*, and *Pismires* cause the *Jaundies* in *Trees*, known by the *discolour* of the *Leaves* and *Buds*.

17. The *Moles* may be taken in *Traps*, and kill'd, as every *Wood-*

man knows: It is certain that they are driven from their *haunts* by *Garlick* for a time, and other heady smels buried in their passages.

18. *Mice* with *Traps*, or by sinking some *Vessel* almost level with the surface of the ground, the *Vessel* half full of *Water*, upon which let there be strew'd some *hulls* or *chaff* of *Oates*; also with *Bane*.

19. Destroy *Pismires* with scalding water, and disturbing their *hills*, or rubbing the *stem* with *Cow-dung*, or a decoction of *Tithymale*, washing the infested parts; and this will insinuate, and chase them quite out of the *chinks* and *crevices*, without prejudice to the *Tree*, and is a good prevention of other *Infirmities*.

20. *Caterpillars*, by cutting off their *webs* from the twigs before the end of *February*, and burning them; the sooner the better: If they be already *hatched* wash them off with *Water*, in which some of the *Caterpillars* themselves, and *Garlick* have been bruised, or the *juyce* of *Rue*, or choak and dry them with *smoak* of *Galbanum*, *Shooe-soles*, *Hair*; and some affirm that planting the *Pionie* neer them is a certain *remedy*; but there is no *remedy* so facile as the *burning* them off with small wisps of dry *straw*, which in a moment rids you.

21. *Rooks* do in time, by pinching off the *buds* and tops of *Trees* for their *Nests*, cause many Trees and *Groves* to decay: But if *Cattel* break in before the time, *conclamatum est*, especially *Goats*, whose mouths and breath is *poyson* to *Trees*; they never thrive well after, and *Varro* affirms, if they but lick the *Olive* tree, they become immediately barren.

22. Another touch at the *Winds*; For though they cannot properly be said to be *Infirmities* of *Trees*; yet they are amongst the principal *causes* that render *Trees* infirme. I know no surer protection against them, than (as we said) to *shelter* and *stake* them whilst they are *young*, 'till they have well establish'd *Roots*; And with this *caution*, that in case any goodly *Trees* (which you would desire especially to preserve and redress) chance to be prostrated by some impetuous and extraordinary *storme*; you be not over hasty to carry him away, or despair of him; but first let me perswade you to *poll* him close, and so let him lye some time; for by this means many vast *Trees* have *rais*'d themselves by the vigour onely of the remaining *Roots*, without any other assistance; so as people have pronounc'd it *Miraculous*, as I could tell you by several Instances; besides what *Theophrastus* relates *c.* 19. of that huge *Platanus*, which rise in one *Night* in his observation; and the like I find hapn'd in more than one *Tree* neer *Bononia* in *Italy*, *An.* 1657. When of late a turbulent *Gust* had almost quite irradicated a very large *Tract* of huge *Poplars*, belonging to the *Marchioness Elephantucca Spada*, that universally erected themselves again after they were beheaded as they lay even prostrate: What says the Naturalist? *Prostratas restitui plerunque, & quadam terræ cicatrice revivisere vulgare est*: 'Tis familiar (says *Plinie*) in the *Platanus*, which

which are very obnoxious to the *Winds*, by reason of the thickness of their branches, which being cut off, and discharged, restore themselves. This also frequently happens in *Wall-nuts*, *Olive-trees*, and several others, as *he* affirms; *l.* 16. *c.* 31. These (amongst many others) are the *Infirmities* to which *Forest-Trees* are subject whilst they are standing; and when they are *fell'd*, to the *Worm*; especially if *cut* before the *Sap* be perfectly at rest: But to *prevent* or *cure* it in the *Timber*, I recommend this *Secret* as the most approv'd.

23. Let common yellow *Sulphur* be put into a *cucurbit-glasse*, upon which pour so much of the strongest *Aqua fortis* as may cover it three fingers deep: *Distil* this to dryness, which is done by two or three *Rectifications*: Let the *Sulphur* remaining in the bottom (being of a blackish or sad red colour) be laid on a *Marble*, or put into a *Glass*, where it will easily dissolve into *Oil*: With this *anoint* what is either *infected* or to be preserved of *Timber*. It is a great and excellent *Arcanum* for tinging the *Wood* with no unpleasant *colour*, by no Art to be washed out; and such a preservative of all manner of *Woods*, nay, of many other things; as *Ropes*, *Cables*, *Fishing-Nets*, *Masts of Ships*, *&c.* that it defends them from *putrefaction*, ether in *Waters*, under, or above the earth, in the *Snow*, *Ice*, *Air*, *Winter* or *Summer*, &c. It were superfluous to describe the *process* of the *Aqua-fortis*; It shall be sufficient to let you know, That our common *Coperas* makes this *Aqua-fortis* well enough for our purpose, being drawn over by a *Retort*: And for *Sulphur* the *Island* of Saint *Christophers* yields enough, (which hardly needs any *Refining*) to furnish the whole *world*. This *Secret* (for the *Curious*) I thought fit not to omit; though a more compendious, three or four *anointings* with *Linseed Oil*, has prov'd very effectual: It was experimented in a *Wall-nut Table*, where it destroy'd millions of *Worms* immediately, and is to be practis'd for *Tables*, *Tubes*, *Mathematical Instruments*, *Boxes*, *Bed-steads*, *Chairs*, *Rarities*, &c. *Oyl* of *Wall-nuts* will doubtless do the same, is sweeter, and a better *Vernish*; but above all is commended Oyl of *Cedar*, or that of *Juniper*.

24. Hitherto I have spoken of *Trees*, their *kinds*, and *propagation* in particular: Now a *word* or two concerning their *ordering* in general, as it relates to *Copses*, *Lopping*, *Felling*, &c. Then I shall add something more concerning their *Uses*, as to *Fewel*, &c. and cast such accidental *Lessons* into a few *Aphorisms*, as could not well be more *regularly* inserted.

Lastly, I shall *conclude* with some more serious *Observations* in reference to the main *Design* and project of this *Discourse*, as it concerns the *Improvement* of his *Majesties Forests*, for the *honour* and security of the whole *Kingdom*.

CHAP.

CHAP. XXVIII.

Of Copses.

Copses.

1. *Sylva Cædua* is (as *Varro* defines it) as well *Copse* to cut for fuel as for use of *Timber*; and we have already shew'd how it is to be *rais'd*, both by *Sowing* and *Planting*. I shall onely *here* add, that if in their first *Designation*, they be so laid out, as to grow for several *Falls*; they will both prove more *profitable*, and most *delightful*: Most *profitable*, because of their annual *Succession*; and most *pleasant*, because there will always remain some of them *standing*; and if they be so cast out, as that you leave strait, and even *Intervals* of eighteen, or twenty *foot* for *grasse*, between *Spring-wood* and *Spring-wood*, securely *Fenc'd*, and preserv'd; the *Pastures* will lye both *warm*, and prove of exceeding *delight* to the *Owner*. These *Spaces* likewise useful and necessary for *Cart-way*, to fetch out the *wood* at every *Fall*. There is not a more noble, and worthy *Husbandry*, than is this, which rejects no sort of *Ground*, as we have abundantly shew'd; since even the most *boggy* places, may so be *drein'd* and cast, as to yield its increase, by Planting the *dryer* sorts upon the Ridges and banks which you cast up, where they will *thrive* exceedingly: Aud then *Willow*, *Sallow*, *Alder*, *Poplar*, *Sycomor*, *&c.* will shoot tollerably well on the lower and more *Vliginous*; with this *caution*, that for the *first two years*, they be kept diligently *weeded* and *clensed*, which is as necessary as *fencing* and guarding from *Cattel*. Our ordinary *Copses* are chiefly upon *Hasel*, or the *Birch*; but if amongst the other kinds store of *Ash*, *Chessnut*, and *Sallow* (at least *one* in *four*) were sprinkled in the *Planting*, the *profit* would soon discover a difference, and well recompence the industry. Others advise us to Plant shoots of *Sallow*, *Willow*, *Alder*, and of all the *swift* growing Trees, being of seven years growth, *sloping* off both the ends towards the ground, to the length of a *Billet*, and burying them a reasonable depth in the earth. This will cause them to put forth seven or eight *branches*, each of which will become a *Tree* in a short time, especially, if the soil be moist. The neerest *distance* for these *Plantations* ought never to be lesse than *five* foot at first, since every *felling* renders them wider for the benefit of the *Timber*, even to *thirty* and *fourty* foot in five or six *fellings*.

2. Though it be almost impossible for us to prescribe at what *Age* it were best *Husbandry* to fell *Coppses* (as we at least call best *Husbandry*) that is, for most, and greatest gain; since the *Mercats*, and

and the *kinds* of *Wood*, and emergent *uses* do so much govern; yet *Copses* are sometimes of a competent stature after *eight* or *nine* years from the *Acorn*, and so every *eight* or *ten* years successively, will rise better and better: But this had need be in extraordinary ground, otherwise you may do well to allow them *twelve* or *fifteen* to fit them for the *Ax*; but those of *twenty* years standing are better, and far advance the price; especially if *Oke*, and *Ash*, and *Chessnut* be the chief furniture. Some of our old *Clergy* spring-Woods heretofore have been let rest till twenty five or thirty years, and have prov'd highly worth the attendance; for by that time even a *Seminary* of *Acorns* will render a considerable advance, as I have already exemplified in the *Northamptonshire* Lady. And if *Copses* were so divided as that every year there might be some *fell'd*, it were a continual, and a present Profit: Seventeen years growth affords a tolerable *Fell*; supposing the *Copse* of seventeen *Acres*, one *Acre* might be yearly *fell'd* for ever; and so more, according to proportion; but the seldom *Fall*, yields the more *Timber*.

3. As to what *Numbers* and *Scantlings* you are to leave on every *Acre*, the *Statutes* are our general *guides*, at least the *legal*. It is a very ordinary *Copse* which will not afford three or four *Firsts*, that is, *Bests*; fourteen *Seconds*, twelve *Thirds*, eight *Wavers*, *&c.* according to which *proportions* the sizes of young Trees in *Copsing* are to succeed one another. By the *Statute* of 35 *Hen.* 8. in *Copses* or *Under-woods* fell'd at twenty four years growth, there were to be left twelve *Standils*, or *stores* of *Oak*, upon each *Acre*; in defect of so many *Oaks*, the same number of *Elms*, *Ash*, *Asp*, or *Beech*; and they to be such as are of likely Trees for *Timber*, and of such as have been spar'd at some former *Felling*, unless there were none, in which case they are to be *then* left, and so to continue without *Felling* till they are *ten inch square* within a *yard* of ground. *Copses* above this growth *fell'd*, to leave twelve great *Oaks*; or in defect of them other *Timber-trees* (as above) and so to be left for twenty years longer, and to be enclosed seven years.

4. In summe, you are to spare as many likely *Trees* for *Timber* as with discretion you can. And as to the felling (beginning at one side, that the *Carts* may enter without detriment to what you leave standing) the *Under-wood* may be cut from *January* at the latest, till mid-*March*, or *April*; or from mid-*September*, till neer the end of *November*; so as all be avoided by *Midsummer* at the latest, and then *fenced* (where the *Rows* and *brush* lye longer unbound or made up, you endanger the losse of a *second Spring*) and not to stay so long as usually they are a *clearing*, that the *young*, and the *Seedlings* may suffer the least interruption: And if the *Winter* previous to your felling *Copses*, you preserve them well from *Cattel*, it will recompense your care.

5. It is advis'd not to cut off the *browse-wood* of *Oaks* in *Copses*, but to suffer it to fall off, as where *Trees* stand very close it usually does: I do not well comprehend why yet it should be *spar'd* so long.

6. When

6. When you espy a *cluster* of *Plants* growing as it were all in a bunch, it shall suffice that you preserve the fairest *Sapling*, cutting all the rest away. And if it chance to be a *Chest-nut*, *Service*, or like profitable *Tree*, clear it from the droppings and incumbrances of other Trees, that it may thrive the better: Then as you passe along, *prune*, and *trim* up all the young *Wavers*, covering such *Roots* as lye bare and expos'd, with fresh mould.

7. Cut not above *half* a *foot* from the *Ground*, and that to the *South* slopewise; *stripping* up such as you spare from their extravagant *branches*, *water-boughs*, *&c.* that hinder the growth of others: Alwayes remembring (before you so much as enter upon this work) to preserve sufficient *Plash-pole* about the *verge* and bounds of the *Copse* for *fence*, and security of what you leave; and for this something lesse than a *Rod* may suffice: Then *raking* your *Wood* clear of *Spray*, *Chips*, and all *incumbrances*, shut it up from the *Cattel*; the longer the better.

8. By the *Statute* Men were bound to enclose *Copses* after *Felling*, of or under fourteen years growth for four years: Those above fourteen years growth to be sixteen years *Enclos'd*; And for *Woods* in *common*, a fourth part to be shut up; and at *Felling* the like proportion of great *Trees* to be left, and seven years *Enclos'd*: This was enlarg'd by 13 *Eliz.* Your elder *Under-woods* may be *graz'd* about *July*: But for a general *Rule*, newly-weaned *Calves* are the least noxious to newly-cut *Spring-woods*, where there is abundance of *Grasse*; and some say, *Colts* of a year old; but then the *Calves* must be driven out at *May* at fartherest, though the *Colts* be permitted to stay a while longer: But of this every mans experience will direct him; and surely the later you admit *Beasts* to *graze*, the better. For the *Measure* of *Fuel* these *proportions* were to be observ'd.

9. Statutable *Billet* should hold *three foot* in *length*, and *seven* inch and half *compasse*; *ten* or *fourteen* as they are counted for *one*, *two*, or *three*, &c. A *Stack* of *Wood* (which is the *boughs* and *offal* of the *Trees* to be converted to *Char-coal*) is four *yards* long, *three foot and half* high (in some places but a *yard*) and as much *over*: In other places the *Cord* is *four foot* in *height*, and *four foot over*; or (to speak more *Geometrically*) a *Solid* made up of three *dimensions*, four foot high, four foot broad, and eight foot long; the *content* 128 *cubique* feet. *Fagots* ought to be a full *yard* in *length*, and *two* foot in *circumference*, made *round*, and not *flat*; for so they contain lesse *Fuel*, though equal in the bulk appearing. But of these *particulars* when we come to speak expresly of *Fuel*.

10. In the mean time it were to be wish'd, that some approv'd *Experiments* were sedulously try'd (with the advice of skillful and ingenious *Physicians*) for the making of *Beer* without *Hopps*; as possibly with the white *Marrubium* (a Plant of singular virtue) or with dry'd *Heath-tops* (*viz.* that sort which bears no *berries*) or the like far more wholesom, and lesse *bitter* than either, *Tamarisk*, *Carduus*, or *Broom*, which divers have essay'd; it might prove a means

means to save a world of *Fuel*, and in divers places young *Timber* and *Copse-wood*, which is yearly spent for *Poles*; especially in Countries where *Wood* is very precious.

Note, that the *Wood-land*-measure by *Statute*, is computed after *eighteen foot* the *Perch*.

CHAP. XXIX.

Of Pruning.

Pruning.

1. *PRuning* I call all purgation of *Trees* from what is superfluous. The *Ancients* found such benefit in *Pruning*, that they feigned a *Goddesse* præsided over it, as *Arnobius* tells us: And in truth, it is in the discreet performance of this *work*, that the improvement of our *Timber* and *Woods* does as much consist as in any thing whatsoever. A skillful *Planter* should therefore be early at this Work: Shall old *Gratius* give you *Reason* and *Direction?*

And his incomparable *Interpreter* thus in *English*.

Twigs of themselves never rise strait and high,
And Under-woods are bow'd as first they shoot.
Then *prune* the *Boughs*; and *Suckers* from the root
Discharge. *The leavy wood fond pity tires,*
After, when with tall rods the Tree aspires,
And the round staves to Heaven advance their twigs,
Pluck all the buds, and strip off all the sprigs;
These issues vent what moisture still abound,
And the veins unimploy'd grow hard and sound.
Wase.

Nunquam sponte sua procerus ad aera termes
Exiit, inque ipsa curvantur stirpe geniſtæ.
Ergo age luxuriam primo fœtusque nocentes
Detrahe: frondosas gravat indulgentia silvas.
Post ubi proceris generosa stirpibus arbor
Se dederit, teretésque ferent ad sidera virgæ,
Stringe notas circum, & gemmantes exige versus.
His, si quis vitium nocitura sufficit humor,
Visceribus fluit, & venas durabit inertes.
Gra. fal. Cynæget.

2. For 'tis a misery to see how our faireſt *Trees* are defac'd, and mangl'd by unskilful *Wood-men*, and mischievous *Bordurers*, who go alwayes arm'd with short *Hand-bills*, hacking and chopping off all that comes in their way; by which our *Trees* are made full of *knots*, *boils*, *cankers*, and deform'd bunches, to their utter destruction: *Good Husbands* should be asham'd of it; though I would have no *Wood-man* pretend to be without all his necessary *Furniture*, when he goes about this *work*; which I (once for all) reckon to be the *Hand-bill*, *Hatchet*, *Hook*, *Hand-saw*, an excellent Pruning-*Knife*, broad *Chizel* and *Mallet*, all made of the best *steel* and kept sharp; And thus he is provided for greater, or more gentle *Executions*, *Purgations*, *Recisions*, and *Coersions*; and it is of main concern, that the proper and effectual *Tool* be applied toevery *work*; since heavy and rude *Instruments* do but *mangle* and *bruise* tender *Plants*; and if they be too small, they cannot make *cleer* and *even work* upon great *arms* and *branches*: The *Knife* is for

Twigs and *Spray*; The *Chizel* for larger *Armes*, and such *Amputations* as the *Ax*, and *Bill* cannot well operate upon. As much to be reprehended are those who either begin this work at unseasonable times, or so maim the poor *branches*, that either out of laziness, or want of skill, they leave most of them *stubs*, and instead of cutting the *Arms* and *Branches* close to the *boal*, hack them off a foot or two from the body of the *Tree*, by which means they become *hollow* and *rotten*, and are as so many *Conduits* to receive the *Rain* and the *Weather*, which perishes them to the very *Matrix* and *Heart*, deforming the whole *Tree* with many ugly *botches*, which shorten its life, and utterly marre the *Timber*: I know Sir *H. Platt* tells us, the *Elm* should be so *lopp'd*, but he says it not of his own *Experience* as I do.

3. By this *Animadversion* alone it were easie for an ingenious man to understand how *Trees* are to be govern'd; which is in a word, by cutting *clean*, *smooth*, and *close*, making the stroke *upward*, and with a sharp *Bill*, so as the weight of an untractable *bough* do not *splice*, and carry the *bark* with it, which is both dangerous and unsightly. The *Oak* will suffer it self to be made a *Pollard*, that is, to have its *Head* quite *cut off*; but the *Elm* so treated, will perish to the *foot*, and certainly become hollow at last, if it scape with *life*.

4. The proper Season for this work is for old Trees *earlier*, for young *later*, as a little after the change in *January* or *February*, some say in *December*:

Then shave their locks, and cut their branchy tresse
Severely now, luxuriant boughs represse.

——Tunc stringe comas, tunc brachia tonde:
——Tunc denique dura
Exerce Imperia, & ramos compesce fluentes.
Georg. 2.

But this ought not to be too much in young *Fruit-tres*, after they once come to form a handsom *head*; in which period you should but onely pare them over about *March*, to cover the *stock* the sooner, if the *Tree* be very choice: To the *aged*, this is plainly a renewing of their *Youth*, and an extraordinary refreshment, if taken in *time*, and that their *Armes* be not suffer'd to grow too great and large: Besides, for *Interlucation*, exuberant *branches*, *& spissæ nemorum comæ*, where the *boughs* grow too thick and are cumbersome, to let in the *Sun* and *Air*, this is of great importance; and so is the sedulous taking away of *Suckers*, *Water-boughs*, *Fretters*, *&c.* And for the benefit of tall *Timber*, the due *stripping up* the branches, and *rubbing* of the *buds* to the heights you require: Yet some do totally forbear the *Oak*, especially if aged, observing that they much exceed in growth such as are prun'd; and in truth such *Trees* as we would leave for *shade*, and ornament, should be seldom cut; but the *browse-wood* cherish'd, and preserv'd as low towards the Ground as may be, for a more venerable and solemn *shade*: and therefore I did much prefer the *walk* of *Elms* at S. *James's Park*, as it lately grew *branchy*, intermingling their reverend tresses, before the present trimming them up so high; especially, since I fear, the *remedy* comes too

too late to save their decay, if the amputations of such over-grown parts as have been cut off, should not rather accelerate it, by exposing their large and many *wounds* to the injuries of the weather, which will indanger the *rotting* of them, beyond all that can be apply'd by *Tar*, or otherwise to protect them: I do rather conceive their Infirmities to proceed from what has not long since been abated of their large spreading Branches, to accommodate with the *Mall*; as any one may conjecture by the great impression which the *wet* has already made in those incurable scarrs, that being now multiplied, must needs the sooner impair them: The *roots* having likewise infinitely suffer'd, by many disturbances about them. In all events this *Walk* might have enjoy'd its goodly Canopy with all their branchy furniture for some *Ages* to come; since 'tis hardly *one*, that first they were planted: But his *Majestie* will have providently, and nobly supplied this *defect*, by their successors of *Lime-trees*, which will sooner accomplish their perfection.

5. Divers other precepts of this nature I could here enumerate, had not the great *experience*, faithful, and accurate *description* how this necessary *work* is to be perform'd, set down by our Countryman honest *Lawson* (*Orchard, cap.* 11.) prevented all that the most *Inquisitive* can suggest: The particulars are so ingenious, and highly material, that you will not be displeas'd to read them in his own style.

All ages (saith he) by Rules and experience do consent to a pruning, and lopping of Trees: Yet have not any that I know described unto us (except in dark, and general words) what, or which are those superfluous boughs, which we must take away; and that is the most chief, and most needful point to be known in lopping. And we may well assure our selves (as in all other Arts, so in this) there is a vantage and dexterity by skill; an habit by practice out of experience, in the performance hereof, for the profit of mankind: Yet do I not know (let me speak it with patience of our cunning Arborists) any thing within the compasse of humane affairs so necessary, and so little regarded; not onely in Orchards, but also in all other Timber-trees, where, or whatsoever.

Now to our purpose:

How many Forests, and Woods, wherein you shall have for one lively thriving Tree, four (nay sometimes twenty four) evil thriving, rotten and dying Trees, even whiles they live; and instead of Trees, thousands of bushes and shrubs? what rottennesse? what hollownesse? what dead arms? wither'd tops? curtail'd trunks? what loads of Mosse? drouping boughs? and dying branches shall you see every where? and those that in this sort are in a manner all unprofitable boughs, canker'd armes, crooked, little and short boals. What an infinite number of Bushes, Shrubs, and Skrags of Hasels, Thornes, and other unprofitable wood, which might be brought by dressing to become

great, and goodly Trees? Consider now the Cause.

The lesser Wood hath been spoil'd with careless, unskilfull, and untimely stowing; and much also of the great Wood. The greater Trees at the first rising have fill'd and overladen themselves with a number of wasteful boughs and suckers, which have not onely drawn the sap from the boal, but also have made it knotty, and themselves, and the boal mossie, for want of dressing; whereas, if in the prime of growth, they had been taken away close, all but one top, and clean by the bulk, the strength of all the sap should have gone to the bulk, and so he would have recovered, and cover'd his knots, and have put forth a fair, long, and streight body, for Timber profitable, huge great of bulk, and of infinite last.

If all Timber-trees were such (will some say) how should we have crooked wood for Wheels, Coorbs, &c?

Answ. Dresse all you can, and there will be enough crooked for those uses.

More than this; in most places they grow so thick, that neither themselves, nor earth, nor any thing under or neer them can thrive; nor Sun, nor Rain, nor Air can do them, nor any thing neer, or under them, any profit or comfort.

I see a number of Hags, where out of one root you shall see three or four (nay more, such is mens unskillful greedinesse, who desiring many, have none good) pretty Oaks, or Ashes streight and tall; because the root at the first shoot gives sap amain: But if one onely of them might be suffer'd to grow, and that well, and cleanly prun'd, all to his very top, what a Tree should we have in time? And we see by those roots continually, and plentifully springing, notwithstanding so deadly wounded, what a Commodity should arise to the Owner, and the Commonwealth if wood were cherished, and orderly dress'd. The waste boughs closely, and skillfully taken away, would give us store of Fences and Fuel; and the bulk of the Tree in time would grow of huge length and bigness: But here (methinks) I hear an unskilful Arborist say, that Trees have their several forms, even by Nature; the Pear, the Holly, the Aspe, &c. grow long in bulk, with few and little Arms. The Oak by nature broad, and such like. All this I grant: But grant me also, that there is a profitable end and use of every Tree, from which if it decline (though by nature) yet Man by Art may (nay must) correct it. Now other end of Trees I never could learn, than good Timber, Fruit much and good, and pleasure: Uses Physical hinder nothing a good form.

Neither let any Man ever so much as think, that it is unprofitable, much lesse unpossible, to reform any Tree of what kind soever: For (believe me) I have tried it: I can bring any Tree (beginning betime) to any form. The Pear, and Holly may be made spread, and the Oak to close.

Thus

Thus far the good *Man* out of his *eight* and *forty* years *experience* concerning *Timber-trees*: He descends then to the *Orchards*; which because it may likewise be acceptable to our industrious *Planter*, I thus contract.

6. Such as stand for *Fruits* should be *parted* from within two foot (or thereabouts) of the earth; so high, as to give liberty to dress the *Root*, and no higher; because of exhausting the *sap* that should feed his *Fruit*: For the *boal* will be first, and best served and fed, being next to the *root*, and of greatest substance. These should be *parted* into two, three, or four *Arms*, as your *graffs* yield twigs; and every *Arm* into two, or more *Branches*, every *Branch* into his several *Cyons*: still spreading by equal degrees; so as his *lowest* spray be hardly without the reach of a mans *hand*, and his *highest* not past two yards higher: That no *twig* (especially in the middest) *touch* his fellow; let him spread as far as his list without any master-bough, or top, equally; and when any fall lower then his fellows (as they will with weight of *Fruit*) ease him the next *spring* of his superfluous *twigs*, and he will rise: When any mount above the rest, *top* him with a *nip* between your *fingers*, or with a *knife*: Thus reform any *Cyon*; and, as your Tree grows in *stature*, and *strength*, so let him rise with his tops, but *slowly*, and easily; especially in the middest, and equally in breadth also; following him upward, with lopping his under-growth, and *water-boughs*, keeping the same distance of *two yards*, not above *three*, in any wise, betwixt the lowest and highest twigs.

1. Thus shall you have handsome, clear, healthful, great and lasting *Trees*.

2. Thus will they grow safe from *Winds*, yet the *top* spreading.

3. Thus shall they bear much *Fruit*; I dare say, one as much as five of your common *Trees*, all his branches loaden.

4. Thus shall your *Boal* being low, defraud the branches but little of their *sap*.

5. Thus shall your *Trees* be easie to *dresse*, and as easie to gather the *Fruit* from, without bruising the *Cyons*, *&c.*

6. The fittest time of the *Moon* for the *Pruning* is (as of *Graffing*) when the *sap* is ready to stir (not proudly stirring) and so to cover the *wound*; and *here*, for the time of *day*, we may take *Columella*, *Frondem medio die arborator ne cædito. l.* 11. Old Trees would be prun'd before young Plants: And *note*, that whersoever you take any thing away, the *sap* the next *Summer* will be putting; be sure therefore when he puts to bud in any unfit place, you *rub* it off with your finger: Thus begin *timely* with your *Trees*, and you may bring them to what form you please. If you desire any *Tree* should be taller, let him *break*, or divide higher: This for *young* Trees: The *old* are reformed by curing of their *diseases*, of which we have already discours'd. There is this only to be consider'd, in reference to *Foresters*, out of what he has spoken concerning *Fruit-trees*; (that as has been touch'd) where *Trees* are planted for shadow,

dow, and meer *ornament*, as in *Walks*, and *Avenues*, the *Browse-wood* (as they call it) should most of it be cherished; whereas in *Fruit*, and *Timber-trees* (*Oak* excepted) it is best to free them of it: As for *Pollards* (to which I am no great friend, because it makes so many *scrags* and *dwarfes* of many *Trees* which would else be good *Timber*, endangering them with *drips* and the like *injuries*) they should not be *headed* above once in ten or twelve years, at the beginning of the *Spring*; or end of the *Fall*. And *note*, that all *Copsing*, and cutting *close*, invigorates the *Roots*, and the *stem* of whatsoever grows *weak* and unkindly; but you must then take *care* it be not *overgrown* with *Weeds* or *Grasse*: Nothing (says my Lord *Bacon Exp.* 586. and truly) causes *Trees* to last so long, as the frequent *Cutting*; every such *diminution* being a *re-invigoration* of the *Plants* juyce, that it neither goes too *far*, nor rises too *faintly*, as when 'tis not timely refresh'd with this *Remedy*; and therefore we see, that the most ancient *Trees* in *Church-Yards*, and about *Old Buildings*, are either *Pollards* or *Dottards*, seldom arising to their full altitude.

7. For the improvement of the speedy growth of *Trees*, there is not a more excellent thing then the frequent *rubbing* of the *Boal* or *Stem*, with some piece of *hair-cloth*, or ruder stuff, at the beginning of *Spring*: some I have known done with *Seals-skin*; the more rugged bark with a piece of *Coat* of *Maile*, which is made of small *wyres*; this done, when the body of the *Trees* are wet, as after a soaking *Rain*; yet so, as not to *excorticate*, or gall the *Tree*, has exceedingly accelerated its growth, (I am assured, to a wonderful and incredible improvement) by opening the *pores*, freeing them of moss, and killing the *worm*.

8. Lastly, *Frondation* or the taking off some of the luxuriant *branches*, and sprays, of such *Trees*, especially whose leaves are profitable for *Cattel* (whereof already) is a kind of *pruning*: and so is the *scarifying*, and cross *hatching* of some *Fruit-bearers*, and others, to abate that φυλλομανία which spends all the *juyce* in the *leaves*, to the prejudice of the rest of the parts.

9. This, and the like, belonging to the *care* of the *Wood-ward*, will mind him of his continual duty; which is to walk about, and survey his young *Plantations* dayly; and to see that all *Gaps* be immediately stopp'd; trespassing *Cattle* impounded; and (where they are infested) the *Deer* chased out, *&c.* It is most certain, that *Trees* preserv'd, and govern'd by this *discipline*, and according to the *Rules* mention'd, would increase the beauty of *Forests*, and value of *Timber*, more in ten, or twelve years, than all other imaginable *Plantations* (accompanied with our usual neglect) can do in forty or fifty.

10. To conclude, in the time of this *Work* would our ingenious *Arborator* frequently *incorporate*, mingle, and unite the *Arms* and *Branches* of some young, and flexible *Trees* which grow in *consort*, and neer to one another; by entring them into their mutual *barks* with a convenient *insition*: This, especially, about *Fields*,

and

and *Hedge-rows* for *Fence* and *Ornament*; also by bowing, and bending of others, especially *Oak* and *Ash*, into various *flexures*, *curbs* and *postures*, oblig'd to ply themselves into different *Modes*, which may be done by humbling and binding them down with tough *bands* and *withs*, or *hooks* rather, cut *Skrew-wise*, or slightly *hagled* and indented with a *knife*, and so *skrewed* into the ground, till the *tenor* of the *sap*, and custom of being so constrain'd, did render them apt to grow so of themselves, without power of redressing; This course would wonderfully accommodate Materials for *Knee-timber* and *Shipping*, the *Wheel-wright* and other uses; conform it to their *Moulds*, and save infinite labour, and abbreviate the work of *hewing* and *waste*,

——adeo in teneris consuescere multum est.

the *Poet*, it seems, knew it well, and for what purposes,

When in the woods with mighty force they bow
The Elme, and shape it to a crooked plow.

Continuò in Sylvis magnâ vi flexa domatur
In burim, & curvi formam accipit Ulmus aratri:
Geo. 1.

so as it even half made it to their hands.

CHAP. XXX.

Of the Age, Stature, *and* Felling *of* Trees.

Felling.

1. IT is not till a *Tree* is arriv'd to his perfect *Age*, and full vigor, that the *Lord* of the *Forest* should consult, or determine concerning a *Felling*. For there is certainly in Trees (as in all things else) a time of *Increment*, or growth; a *Status* or season when they are at *best* (which is also that of *Felling*) and a *decrement* or *period* when they *decay*. To the first of these they proceed with more, or less *velocity*, as they consist of more strict and compacted *particles*, or are of a slighter, and more laxed *contexture*; by which they receive a speedier, or slower *destruction* of *Aliment*: This is apparent in *Box*, and *Willow*; the one of a harder, the other of a more tender *substance*: But as they proceed, so they likewise continue. By the *state* of Trees I would signifie their utmost *effort*, growth, and maturity, which are all of them different as to *time*, and *kind*; yet do not I intend by this any *period* or instant in which they do not continually either Improve or Decay (the *end* of *one* being still the *beginning* of the *other*) but farther than which, their *Natures* do not extend; but immediately (though to our senses *imperceptibly*) through some *infirmity* (to which all things sublunary be obnoxious) dwindle and impair, either through *Age*, defect of *Nourishment*, by *sickness*, and decay of principal *parts*; but

but eſpecially, and more inevitably, when violently invaded by mortal and incurable *Infirmities*, or by what other extinction of their native *heat*, *ſubſtraction*, or *obſtruction* of *Air* and *Moiſture*, which making all *motions* whatſoever to ceaſe and determine, is the cauſe of their final deſtruction.

2. Our honeſt *Countrey*-man, to whoſe *Experience* we have been obliged for ſomething I have lately *Animadverted* concerning the *Pruning* of Trees, does in another *Chapter* of the ſame *Treatiſe*, ſpeak of the *Age* of Trees. The *Diſcourſe* is both learned, rational, and full of encouragement: For he does not ſcruple to affirm, That even ſome *Fruit-Trees* may poſſibly arrive to a *thouſand* years of *Age*; and if ſo *Fruit-Trees*, whoſe continual bearing does ſo much impair and ſhorten their lives, as we ſee it does their form and beauty; How much longer might we reaſonably imagine ſome hardy and ſlow-growing *Foreſt-trees* may probably laſt; I remember *Pliny* tells us of ſome *Oaks* growing in his time in the *Hercynian* Foreſt, which were thought *co-evous* with the *World* it ſelf; their roots had even raiſed *Mountains*, and where they encounter'd, ſwell'd into goodly *Arches* like the Gates of a *City*: But our more modern *Author's* calculation for *Fruit-trees* (I ſuppoſe he means *Pears*, *Apples*, &c. his allowance is *three hundred* years for *growth*, as much for their *ſtand* (as he terms it,) and *three hundred* for their *Decay*, which does in the total amount to no leſſe than *nine hundred* years. This conjecture is deduc'd from *Apple-Trees* growing in his *Orchard*, which having known for fourty years, and upon diligent enquiry of ſundry aged Perſons of eighty years and more, who remembred them Trees all their time, he finds by comparing their growth with others of that *kind*, to be far ſhort in bigneſs and perfection, (*viz.* by more then two parts of three) yea albeit thoſe other Trees have been much hindered in their ſtature, through ill government and miſ-ordering.

3. To eſtabliſh this, he aſſembles many *Arguments* from the age of *Animals*, whoſe *ſtate* and *decay* double the time of their *increaſe* by the ſame proportion: *If then* (ſaith he) *thoſe fraile* Creatures, *whoſe bodies are nothing* (*in a manner*) *but a tender rottenneſſe*, *may live to that* age; *I ſee not but a* Tree *of a ſolid ſubſtance*, *not damnified by* heat *or* cold, *capable* of, *and ſubject* to *any kind of ordering or dreſſing*, *feeding naturally*, *and from the beginning diſburthen'd of all ſuperfluities*, *eaſed of*, *and of his own accord avoiding the cauſes that may annoy him*, *ſhould double the* life *of other* Creatures *by very many years*. He proceeds, *What elſe are* Trees *in compariſon with the* Earth, *but as* hairs *to the body of* Man? *And it is certain*, *that* (*without ſome diſtemper*, *or forcible cauſe*) *the* hairs *dure with the* body, *and are eſteem'd* excrements *but from their ſuperfluous growth*: So as he reſolves upon good *Reaſon*, that *Fruit-trees* well ordered, may live a *thouſand years*, and bear *Fruit*; and the longer the *more*, the *greater*, and the *better* (for which an *Inſtance* alſo in Dr. *Beale's Hereford-ſhire* Orchards, *pag.* 21, 22.) becauſe his vigour is proud and ſtronger, when his years are many. Thus ſhall you ſee *old Trees* put forth their

their *Buds* and *Blossoms* both sooner, and more plentifully than *young Trees* by much; *And I sensibly perceive* (saith he) *my young* Trees *to enlarge their Fruit as they grow greater, &c.* And if *Fruit-Trees* continue to this *Age*, how many *Ages* is it to be supposed strong and huge *Timber-Trees* will last? whose massie *bodies* require the years of divers *Methusela's* before they determine their days; whose *Sap* is strong and bitter; whose *Bark* is hard and thick, and their substance solid and stiff; all which are defences of health and long life. Their strength withstands all forceable *Winds*; their *Sap* of that quality is not subject to *Worms* and tainting; their *Bark* receives seldom or never by casualty any wound; and not only so, but he is free from *Removals*, which are the death of *millions* of *Trees*; whereas the *Fruit-tree* (in comparison) is little, and frequently blown down; his *Sap* sweet, easily and soon tainted; his *Bark* tender, and soon wounded; and himself used by *Man*, as *Man* uses himself; that is, either *unskilfully*, or *carelesly*. Thus he. But *Vossius de Theolog. Gent. l. 5. c. 5.* gives too little age to *Ashes*, when he speaks but of one hundred years; and to the *Medica*, *Pyrus*, *Prunus*, *Cornus* but sixty: he had as good have held his peace: Even *Rosemary* has lasted amongst us a hundred years.

4. I might to this add much more, and truly with sufficient probability, that the *Age* of *Timber-trees*, especially of such as be of a compact, *resinous*, or *balsamical* nature (for of this kind are the *Eugh*, *Box*, *Horn-beam*, *White-thorn*, *Oak*, *Walnut*, *Cedar*, *Juniper*, *&c.*) are capable of very long duration and continuance: Those of largest *Roots* (a sign of Age) longer liv'd than the *shorter*; the *dry* than the *wet*; and the *gummy*, than the *watery*, *sterile*, than the *fruitful*: For not to conclude from *Pliny's Hercynian* Oaks, or the *Terpentine* Tree of *Idumæa*, (which *Josephus* ranks also with the *Creation*:) I mention'd a *Cypress* yet remaining somewhere in *Persia* neer an old *Sepulchre*, whose *stem* is as large as *five* men can encompass, the boughs extending fifteen paces every way; this must needs be a very old Tree, believ'd by my *Author* little lesse then 2500. years of *age*: The particulars were too long to recount. The old *Platanus* set by *Agamemnon*, mention'd by *Theophrastus*, and the *Herculean* Oaks; the *Laurel* neer *Hippocren*, the *Vatican Ilex*, the *Vine* which was grown to that bulk *and Woodinesse*, as to make *Columns* in *Juno's* Temple: *Pliny* mentions one of six hundred *years* old in his time; and at *Eguan* the late *Duke* of *Montmoramys* house, is a *Table* of a very large dimention made of the same plant. And the old *Lotus* Trees, recorded by *Valerius Maximus*, and the *Quercus Mariana* celebrated by that Prince of *Orators*: *Plinies* huge *Larix*, and what grew in the *Fortunate Islands*, with that enormous *Tree Scaliger* reports was growing in the *Troglodytic India*, &c. were famous for their age: Saint *Hierome* affirms he saw the *Sycomor* that *Zaccheus* climb'd up, to behold our LORD ride in Triumph to *Jerusalem*: And now in the *Aventine* Mount they shew us the *Malus*, *Medica*, planted by the hand of Saint *Dominic*: In *Congo* they speak of *Trees* capable to be excavated in *Vessels* that

would contain two hundred *men* a piece. To which add those superannuated *Tilia's* now at *Basil*, and that of *Auspurg*, under whose prodigious *shade* they so often *feast*, and celebrate their *Weddings*; because they are all of them noted for their reverend *Antiquity*; for to such *Trees* it seems they paid *Divine* honours, as the neareſt *Emblems* of Eternity, *& tanquam sacros ex vetustate*, as *Quintilian* speaks: And like to these might that *Cypresse* be, which is celebrated by *Virgil*, neer to another Monument.

5. But we will spare our *Reader*, and refer him that has a desire to multiply *examples* of this kind, to those undoubted *Records* our *Naturalist* mentions in his 44. *Chap. Lib.* 16. where he shall read of *Scipio Africanus's* Olive-Trees; *Dianus Lotus*, the *Ruminal* Fig-tree lasting (as *Tacitus* calculated 840 years: The *Ilix* of prodigious antiquity, as the *Hetrusian* Inscription remaining on it imported; But *Pausanias* in his *Arcadics*, thinks the *Samian Vitex* (of which already) to be one of the oldest Trees growing, and the *Platan* set by *Menelaus*; to these he adds the *Delian Palme*, co evous with *Apollo* himself; and the *Olive* planted by *Minerva* according to their tradition; the over-grown *Myrtil*; the *Vatican* Holm, those of *Tyburtine*, and especially, that neer to *Tusculum*, whose body was thirty five foot about; besides divers others which he there enumerates in a large *Chapter*: And what shall we conjecture of the age of *Xerxes's* huge *Platanus*, in admiration whereof he staid the march of so many hundred thousand men for so many days; by which the wise *Socrates* was us'd to *swear*? And certainly, a goodly *Tree* was a powerful attractive, when that prudent *Consul*, *Passienus Crispus* fell in love with a prodigious *Beech* of a wonderful age and stature, and that wise Prince *Francis* the *First*, with an huge *Oak*, which he caus'd to be so curiously immur'd at *Bituriges*.

6. We have already made mention of *Tiberius's Larch*, employ'd about the *Naumachiaria*, which being of one hundred and twenty foot in length, bare two foot *diameter* all that space, not counting the top: To this might be added the *Mast* of *Demetrius's Galeasse*, which consisted of one *Cedar*. And that of the *Float* which wafted *Caligulas Obelisks* out of *Ægypt*, four fathoms in circumference: We read also of a *Cedar* growing in the *Island* of *Cyprus*, which was 130 foot *long*, and 18 in *diameter*; of the *Plane* in *Athens*, whose roots extended 36 Cubits farther then the boughs, which were yet exceedingly large; and such another was that most famous Tree at *Veliternus*, whose arms stretch'd out 80 foot from the stem: But these were *solid*: Now if we will calculate from the *hollow* besides those mention'd by *Pliny*, in the *Hercynian* Forest; the *Germans* (as now the *Indians*) had of old some *Punti* or *Canoes* of excavated *Oak*, which would well contain thirty, some fourty persons: And the *Lician Platanus* recorded by the *Naturalist*, and remaining long after his days, had a room in it of eighty one feet in compass, adorn'd with *Fountains*, stately *Seats* and *Tables* of stone; for it seems it was so glorious a *Tree* both in body, and head, that *Licinius Mutianus* (three times *Consul*, and Governour of that *Province*)

vince) us'd to feast his whole Retinue in it, chusing rather to lodge in it, then in his golden-roofed *Palace*; And of later date, that vast *Cerrus* in which an *Eremite* built his *Cell* and *Chappel*, so celebrated by the noble *Fracastorius* in his Poem *Malteide. Cant.* 8. *Stro.* 30.

7. Compare me then with *these*, that nine-fathom'd-deep *Tree* spoken of by *Josephus à Costa*; the *Mastick-tree* seen, and measur'd by Sir *Francis Drake*, which was four and thirty yards in circuit; Those of *Nicaragua* and *Gambra*, which 17 persons could hardly embrace. In *India*, (says *Pliny*) *Arbores tantæ proceritatis traduntur, ut sagittis superari nequeant* (and adds, which I think *material*, and therefore add also) *Hæc facit ubertas soli, temperies cæli, & Aquarum abundantia.* Such were those *Trees* in *Corsica*, and neer *Memphis*, *&c.* recorded by *Theophrastus*, *&c*, and for prodigious height; the *two* and *three hundred foot* unparallel'd *Palms-royal* describ'd by Captain *Ligon*, growing in our *Plantations* of the *Barbados*; or those goodly *Masts* of *Fir*, which I have seen, and measur'd, brought from *New-England*: and what *Bembus* relates of those *twenty*-fathom'd *Antartic*-Trees; or those of which *Cardan* writes, call'd *Ciba*, which rising in their several *Stems* each of twenty *foot*, in compass, and as far distant each from other, unite in the *bole* at fifteen *foot* height from the ground, composing *three* stately *Arches*, and thence ascending in a *shaft* of prodigious bulk and altitude; Such *Trees* of 37 foot *diameter* (an incredible thing) *Scaliger* (his Antagonist) speaks of *ad Gambræ fluvium*. *Mathiolus* speaks of a Tree growing in the Island of *Cyprus*, which contain'd 130 foot high sound *Timber*: And upon *Mount Ætna* in *Sicily* is a place call'd by them, the *Ire Castayne* from three *Chesnut-Trees* there standing, where in the cavity of one yet remaining, a considerable *Flock* of *Sheep* is commonly folded: *Kerchers* words are these, as seen by himself, *Et quod forsan παράδοξον videri possit, ostendit mihi viæ dux, unius Castaneæ Corticem tantæ amplitudinis, ut inta eam integer pecorum grex à pastoribus, tanquam in Caula, commodissima noctu includeretur. China Illust. p.* 185. And what may we conceive of those *Trees* in the *Indias*, one of whose *Nuts* hardly one man is able to carry; and which are so vast, as they depend not like other *Fruit*, by a *Stalke* from the boughs, but are produc'd out of the very body and *stem* of the *Tree*, and are sufficient to feed twenty persons at a *meale*.

We read of a certain *Fig* in the *Caribby Islands*, which emits such large buttresses, that great *Planks* for Tables and Flooring are cleft out of them, without the least prejudice to the *Tree*; and that one of these do easily shelter 200 men under them: *Strabo*, I remember, *Geog. l.* 15. talkes of fifty Horsmen under a *Tree* in *India*; his words are ὧν ὑφ' ἕνι δένδρῳ μεσημβρίαν σκιαζομένους ἱππέας πεντήκοντα, and of another that shaded five *stadia* at once; and in another place of a *Pine* about *Ida*, which held 24 foot diameter, and of a monstrous height: But *this*, and all we have hitherto produc'd, is nothing to what I find mention'd in the late *Chineze History* (as 'tis set forth upon occasion of the *Dutch Embassy*) where they tell us of

a certain *Tree* call'd *Ciennich* (or the *Tree* of a thousand *years*) in the Province of *Suchu* neer the City *Kien*, which is so prodigiously large, as to shrow'd 200 *Sheep* under one onely *branch* of it, without being so much as perceiv'd by those who approch it. And to conclude with yet a greater wonder, of another in the *Province* of *Chekiang*, whose amplitude is so stupendiously vast, as *fourescore* persons can hardly embrace: not to omit the strange, and incredible bulk of some *Oaks* standing lately in *Westphalia*, whereof *one* serv'd both for a *Castle* and *Fort*, and another there which contain'd in height 130 *foot*, and (as some report) 30 *foot* diameter: I have read of a *Table* of *Walnut-tree* to be seen at Saint *Nicholas*'s in *Lorraine*, which held 25 *foot* broad, all of a *piece*, and of competent length and thickness, rarely *flek'd* and *watered*; *Scamozzi* the *Architect* reports he saw it: Such a monster, *that* might be, under which the *Emperor Fred.* the *third* held his magnificent *Feast* 1472. For in this *resention* we will endeavour to give a taste of more fresh observations, and to compare our modern *Timber* with the *Ancient*, and that, not only abroad, but without travelling into forreign Countries for these wonders.

8. What goodly *Trees* were of old *ador'd*, and consecrated by the *Dryads* I leave to conjecture from the stories of our ancient *Britains*, who had they left *Records* of their *prodigies* in this kind, would doubtless have furnish'd us with *examples* as remarkable for the *growth* and *stature* of Trees, as any which we have deduc'd from the *Writers* of forreign places, since the remains of what are yet in being (notwithstanding the havock which has universally been made, and the little care to improve our *woods*) may stand in fair competition with any thing that *Antiquity* can produce.

9. There is somewhere in *Wales* an *Inscription* extant, cut into the wood of an old *Beam*, thus,

SEXAGINTA PEDES FUERANT IN STIPITE NOSTRO,
EXCEPTA COMA QUÆ SPECIOSA FUIT.

This must needs have been a noble *Tree*, but not without later *parallels*; for to instance in the several *species*, and speak first of the bulks of some immense *Trees*; there was standing an old and decay'd *Chesnut* at *Fraiting* in *Essex*, whose very stump did yield thirty sizable load of *Logs*; I could produce you another of the same kind in *Glocestershire* which contains within the bowels of it a pretty wain-scotted Room inlighten'd with windows, and furnish'd with seats, *&c.* to answer the *Lician Platanus* lately mention'd.

10. But whilest I am on this period; see what a *Tilia* that most learn'd, and obliging person, D. *Brown* of *Norwich*, describes to me in a *Letter* just now receiv'd.

An extraordinary large, and stately Tilia, Linden *or* Lime-tree, *there groweth at* Depeham *in* Norfolk, *ten miles from* Norwich, *whose measure is this. The compass in the least part of the* Trunk *or body about*

about two yards from the ground is at least eight yards *and* half: *about the root nigh the earth,* sixteen yards, *about half a yard above* that, *neer twelve* yards *in circuit: The* height *to the uppermost boughs about* thirty yards, *which surmounts the famous* Tilia *of* Zurich *in* Switzerland; *and uncertain it is whether in any* Tilicetum, *or* Lime-walk *abroad it be considerably exceeded: Yet was the first motive I had to view it not so much the largeness of the* Tree, *as the general opinion that no man could ever name it; but I found it to be a* Tilia fœmina; *and (if the distinction of* Bauhinus *be admitted from the greater, and lesser* leaf) *a* Tilia Platyphyllos *or* Latifolia; *some leaves being* three inches *broad; but to distinguish it from others in the* Country, *I call'd it* Tilia Colossæa Depehamensis. *Thus* the Doctor.

A *Poplar tree* not much inferior to this he informs me grew lately at *Harlingly Thetford*, at Sir *William Gawdies* gate, blown down by that terrible *Hurrocan* about four years since.

11. I am told of a very *Withy tree* to be seen somewhere in *Barkshire*, which is increased to a most stupendious bulk: But *these* for arriving hastily to their *Acme*, and *period*, and generally not so considerable for their use; I pass to the *Ash*, *Elm*, *Oak*, *&c.*

There were of the *first* of these divers which measur'd in length *one hundred and thirty two foot*, sold lately in *Essex*: and in the *Manor* of *Horton* (to go no farther than the *Parish* of *Ebsham* in *Surrey*, belonging to my Brother *Richard Evelyn* Esq;) there are *Elms* now standing in good numbers, which will bear almost three foot square for more then forty foot in height, which is (in my judgement) a very extraordinary matter. They grow in a moist *Gravel*, and in the *Hedge-rows*.

Not to insist upon *Beech*, which are frequently very large; there are *Oaks* of forty foot high; and five foot *diameter* yet flourishing in divers old *Parks* of our *Nobility* and *Gentry*.

A large and goodly *Oak* there is at *Reedham* in Sir *Richard Berneys* Park of *Norfolk*, which I am inform'd was valu'd at forty pounds the *Timber*, and twelve pounds the lopping wood.

12. Nor are we to over-pass those memorable Trees which so lately flourished in *Dennington Park* neer *Newberry*; amongst which, *three* were most remarkable from the ingenious *Planter*, and *dedication* (if *Tradition* hold) of the famous English *Bard*, *Jeofry Chaucer*; of which one was call'd the *Kings*, another the *Queens*, and a third *Chaucers Oak*. The *first* of these was *fifty* foot in height before any *bough* or *knot* appear'd, and cut *five* foot square at the *butt-end*, all clear *Timber*. The *Queens* was fell'd since the *Wars*, and held forty foot excellent Timber, straight as an arrow in growth and grain, and cutting four foot at the *stub*, and neer a yard at the top; besides a fork of almost ten foot clear timber above the shaft, which was crown'd with a shady *tuft* of boughs, amongst which, some were on each side curved like *Rams-horns*, as if they had been so industriously bent by hand. This *Oak* was of a kind so excellent, cutting a grain clear as any *Clap-board* (as appear'd in the *Wainscot* which was made thereof) that a thousand pities it is some *semina-*

ry

ry of the *Acorns* had not been propagated, to preserve the species. *Chaucers Oak*, though it were not of these dimensions, yet was it a very goodly Tree: And this account I receiv'd from my most honour'd friend *Phil. Packer* Esq; whose *Father* (as now the *Gentleman* his *Brother*) was proprietor of this *Park*: But that which I would farther remark, upon this occasion is, the *bulk*, and *stature* to which an *Oak* may possibly arrive within lesse then three *hundred* years; since it is not so long that our *Poet* flouriſh'd (being in the *Reign* of King *Edward* the *fourth*) if at least he were indeed the *Planter* of those *Trees*, as 'tis confidently affirm'd. I will not labour much in this enquiry; because an *implicit* faith is here of great encouragement; and it is not to be conceiv'd what *Trees* of a good kind, and in apt *soil*, will perform in a few years; and this (I am inform'd) is a sort of *gravelly clay*, moistn'd with small and frequent springs. In the mean while, I have often wish'd, that *Gentlemen* were more curious of transmitting to *Posterity*, such *Records*, by noting the *years* when they begin any considerable *Plantation*; that the *Ages* to come, may have both the satisfaction, and encouragement by more accurate and certain *Calculations*. I find a *Jewish* tradition, cited by the learned *Bochart*; That *Noah* planted the *Trees* (he supposes *Cedars*) of which he afterwards built the *Ark* that preserv'd him. But to proceed.

13. There was in *Cuns-burrow* (sometimes belonging to my Lord of *Dover*) several *Trees* bought by a *Couper*, of which he made *ten pound per yard* for three or four yards, as I have been credibly assur'd: But where shall we parallel that mighty *Tree* which furnish'd the *Main-mast* to the *Sovereign* of our *Seas*, which being one *hundred foot long* save one, bare *thirty five* inches *diameter*. Yet was this exceeded in proportion, and use, by that *Oak* which afforded those prodigious *beams* that lye thwart her. The *diameter* of this *Tree* was four foot nine *inches*, which yielded four-square beams of *four and forty* foot long each of them. The *Oak* grew about *Framingam* in *Suffolk*; and indeed it would be thought fabulous, but to recount only the extraordinary dimensions of some *Timber-trees* growing in that *County*; and of the excessive sizes of these *materials*, had not mine own hands measur'd a *Table* (more then once) of above *five* foot in breadth, *nine* and an *half* in length, and *six* inches thick, all intire and clear: This plank cut out of a *Tree* fell'd down by my *Fathers* order, was made a *Pastry-board*, and lyes now on a frame of solid *Brick work* at *Wotton* in *Surrey*, where it was so placed before the *room* was finish'd about it, or wall built, and yet abated by *one foot* shorter, to confine it to the intended dimensions of the place; for at first, it held this breadth, full *ten foot* and an *half* in length. *Mersennus* tells us that the *Great Ship* call'd the *Crown*, which the late *French King* caus'd to be built, has its *keel-timber* 120 foot long; and the *Main-mast* 12 foot *diameter* at the bottom, and 85 in height.

14. To these I might add that superannuated *Eugh tree* growing now in *Braburne Church-yard*, not far from *Scots hall* in *Kent*; which being

being 58 foot 11 *inches* in the *circumference*, will bear neer *twenty* foot *diameter*, as it was measur'd first by my self imperfectly, and then more exactly for me, by order of the Right Honourable Sir *George Carteret*, *Vice-Chamberlain* to his *Majesty*, and late *Treasurer* of the *Navy*: not to mention the goodly *planks*, and other considerable pieces of squar'd, and clear *Timber*, which I observ'd to lye about it, that had been hew'd, and *sawn* out of some of the *Arms* only, torn from it by impetuous winds. Such another *Monster* I am inform'd is also to be seen in *Sutton Church-yard*, neer *Winchester*: But these (with infinite others, which I am ready to produce) might fairly suffice to vindicate, and assert our *Proposition*, as it relates to *modern examples*, and sizes of *Timber-trees*, comparable to any of the *Ancients*, remaining upon laudable and unsuspected *Record*; were it not great ingratitude to conceal a most industrious, and no less accurate *Accompt*, which comes just now to my hands from Mr. *Halton*, Auditor to the Right Honourable, the most Illustrious, and Noble, *Henry Lord Howard* of *Norfolk*.

In Sheffield *Lordship.*

15. In the *Hall Park*, neer unto *Rivelin*, stood an Oak which had eighteen yards without bough, or knot; and carryed a *yard* and *six inches* square at the said height, or length, and not much bigger neer the *root*: Sold twelve years ago for 11 *li.* *Consider the* distance *of the* place, *and* Country; *and what so prodigious a* Tree *would have been* worth *neer* London. *The names of the* persons *who gave intelligence of the* particulars. Edw. Rawson.

In *Firth's Farme* within *Sheffield Lordship*, about twenty years since, a *Tree* blown down by the *wind*, made, or would have made two *Forge-hammer-beams*, and in those, and the other wood of that Tree, there was of worth, or made 50 *li.* and *Godfrey Frogat* (who is now living) did oft say, he lost 30 *li.* by the not buying of it. Cap. Bullock.

A *Hammer-beam* is not less then 7½ yards long, and 4 foot square at the *barrel*.

In *Sheffield Park*, below the *Manor*, a *Tree* was standing which was sold by one *Giffard* (servant to the then *Countess* of *Kent*) for 2 *li.* 10 *s.* to one *Nich. Hicks*; which yielded of sawn *Wair* fourteen hundred, and by estimation, twenty *Chords* of wood.

A *Wair* is two yards long, and one foot broad, sixscore to the hundred: so that, in the said *Tree* was 10080 foot of *Boards*; which, if any of the said Boards were more then *half-inch* thick, renders the thing yet more admirable. Ed. Morphy, *Wood-ward.*

In the upper end of *Rivelin* stood a *Tree*, call'd the *Lords-Oak*, of twelve yards *about*, and the *top* yielded twenty one *Chord*, cut down about thirteen years since.

In *Sheffield Park*, *An.* 1646. stood above 100 *Trees* worth 1000 *li.* and there are yet two worth above 20 *l. still note the place*, *and market.*

In the same *Park*, about eight years ago, *Ralph Archdall* cut a *Tree*

Tree that was thirteen foot *diameter* at the *Kerf*, or cutting place neer the Root.

In the same Park two years since, Mr. *Sittwell*, with *Jo. Magson* did chuse a *Tree*, which after it was cut, and laid aside flat upon a level ground, *Sam. Staniforth* a *Keeper*, and *Ed. Morphy*, both on horse-back, could not see over the *Tree* one anothers *Hat-crowns*. This *Tree* was afterwards sold for 20 *li.*

In the same *Park*, neer the old foord, is an *Oak-tree* yet standing, of ten yards *circumference.*

Jo. Halton. In the same *Park*, below the *Conduit* Plain, is an *Oak-tree* which bears a *top*, whose *boughs* shoot from the *boal* some fifteen, and some sixteen yards.

Then admitting $15\frac{1}{2}$ yards for the common, or mean extent of the *boughs* from the *boal*, which being doubled is 31 yards; and if it be imagin'd for a *diameter*, because the *Ratio* of the *diameter* to the *circumference* is $\frac{113}{355}$ it follows 113. 355. :: 31. 97 $\frac{44}{113}$ *yards* which is the *circumference* belonging to this *diameter.*

Then farther it is demonstrable in *Geometry*, that half the *diameter* multiplied into half the *circumference* produces the *Area* or quantity of the *Circle*, and that will be found to be 754 $\frac{347}{452}$ which is 755 square yards *ferè.*

Then lastly, if a *Horse* can be limited to three square *yards* of ground to stand on (which may seem a competent proportion of three yards long, and one yard broad) then may 251 *Horse* be well said to stand under the shade of this *Tree.* But of the more *Northern Cattle* certainly, above twice that number.

Worksopp-Park.

16. In this *Park*, at the corner of the *Bradshaw*-rail, lyeth the *boal* of an *Oak-tree* which is twenty nine foot about, and would be found thirty, if it could be justly measur'd; because it lyeth upon the ground; and the length of this boal is ten foot, and no arm, nor branch upon it.

Kenhelm Homer.

In the same *Park*, at the white gate, a *Tree* did stand that was from bough end to bough end (that is, from the extream ends of two opposite boughs) 180 foot; which is witness'd by *Jo. Magson* and *Geo. Hall*, and measur'd by them both.

Jo. Magson. Geo. Hall.

Then because 180 foot, or 60 yards is the *diameter*; 30 yards will be the *semidiameter*: And by the former *Analogies*

113. 355 :: 60. 188$\frac{1}{2}$

and

1. 30 :: 94$\frac{1}{4}$. 2827$\frac{1}{2}$

That is, the *Content* of ground upon which this Tree *perpendicularly* drops, is above 2827 square yards, which is above half an *Acre* of ground: And the assigning three

three square yards (as above) for an *Horse*, there may 942 be well said to stand in this compass.

In the same *Park* (after many hundreds sold, and carryed away) there is a *Tree* which did yield *quarter-cliff bottoms* that were a yard square: and there is of them to be seen in *Worksopp* at this day, and some *Tables* made of the said *quarter-cliff* likewise. *Jo. Magson.*

In the same *Park*, in the place *there* call'd the *Hawks-nest*, are *Trees* forty foot long of *Timber*, which will bear two foot square at the top-end or height of forty foot.

If then a *square* whose side is two foot, be inscribed in a *Circle*, the proportions at that *Circle* are

	feet
Diameter	2 : 8284
Circumference	8 : 8858
Area	6 : 2831

And because a *Tun* of *Timber* is said to contain forty solid feet: one of these *Columns* of *Oak* will contain above six *Tun* of *Timber* and a quarter: in this computation taking them to be *Cylinders*, and not tapering like the *segment* of a *Cone*.

Welbeek-Lane.

17. The *Oak* which stands in this *Lane* call'd *Grindal-Oak*, hath at these several distances from the ground these *Circumferences*,

	foot	*foot*	*inch*
at	1	33 :	01
at	2	28 :	05
at	6	25 :	07

The breadth is from bough-end to bough-end (*i.*) *diametrically* 88 foot; the height from the ground to the top-most bough 81 foot [this *dimension* taken from the proportion that a *Gnomon* bears to the shadow] there are three *Arms* broken off and gone, and eight very large ones yet remaining, which are very fresh and good *Timber*.

88 foot is $29\frac{1}{3}$ yards, which being in this case admitted for the *diameter* of a *circle*, the *square yards* in that *circumference* will be 676 *ferè*; and then allowing three yards (as before) for a beast, leaves 225 beasts, which may possibly stand under this *Tree*.

But the *Lords-Oak*, that stood in *Rivelin*, was in *diameter* three yards, and twenty eight inches; and exceeded this in *circumference* three feet, at one foot from the ground.

Shire-Oak.

Shire-Oak is a *Tree* standing in the ground late Sir *Tho. Hewets*, about a mile from *Worksopp-Park*, which drops into three *Shires*, viz. *York*, *Nottingham*, and *Derby*, and the distance from bough- *Hen. Homes.*

end to bough-end, is ninety foot, or thirty yards.

This circumference will contain neer 707 square yards, sufficient to shade 235 *horse*.

Thus far the accurate Mr. *Halton*.

18. Being inform'd by a *person* of credit, that an *Oak* in *Sheffield-Park*, call'd the *Ladies-Oak*, fell'd, contain'd forty two *Tun* of *Timber*, which had *Arms* that held at least four foot square for ten yards in length; the *Body* six foot of clear *Timber*: That in the same *Park* one might have chosen above 1000 *Trees* worth above 6000 *li.* another 1000 worth 4000 *li.* *&* *sic de cæteris*: To this M. *Halton* replies, That it might possibly be meant of the *Lords-Oak* already mention'd to have grown in *Rivelin*: For now *Rivelin* it self is totally destitute of that issue she once might have glori'd in of *Oaks*; there being only the *Hall-Park* adjoyning, which keeps up with its number of *Oaks*. And as to the computation of 1000 *Trees* formerly in *Sheffield-Park* worth 6000 *li.* it is believ'd there were a *thousand* much above that value; since in what is now inclos'd, it is evident touching 100 worth a *thousand pounds*. I am inform'd that an *Oak* (I think in *Shropshire*) growing lately in a *Coppse* of my Lord *Cravens*, yielded 19 *Tun* and half of *Timber*, 23 *Cord* of *Fire-wood*, 2 load of *Brush*, and 2 load of *Bark*. And my worthy friend *Leonard Pinckney* Esq; late first *Clerk* of his Majesties *Kitchin* (from whom I receiv'd the first hints of many of these particulars) did assure me, that one *John Garland* built a very handsome *Barne*, containing five *Baies*, with *Pan*, *Posts*, *Beams*, *Spars*, &c. of one sole *Tree*, growing in *Worksopp-Park*. I will close *This* with an *Instance* which I greatly value, because it is transmitted to me from that honourable and noble Person Sir *Ed. Harley*: *I am* (says he) *assur'd by an* Inquisition *taken about* 300 years *since*, *that a* Park *of mine*, *and some adjacent* Woods, *had not then a* Tree *capable to bear* Acorns; *Yet*, *that very* Park *I have seen full of great* Oaks, *and most of them in the extreamest* Wane *of* decay. *The* Trunk *of one of these* Oaks *afforded so much* Timber, *as upon the* place *would have yielded* 15 *li. and did compleatly* seat *with* Waine-scot Pues *a whole* Church: *You may please* (says he, writing to *Sir Rob. Morray*) *to remember when you were* here, *you took notice of a large* Tree, *newly* fallen; *When it was wrought up*, *it proved very hollow and unsound*: *One of its* cavities *contayn'd* two Hogs-heads *of* Water, *Another was filled with better stuff*, Wax *and* Hony; *Notwithstanding all defects*, *it yielded*, *besides* three Tun *of* Timber, 23 Cords *of* Wood: *But my own* Trees *are but* Chips *in comparison of a* Tree *in the* Neighbourhood, *in which every* foot *forward one with another*, *was* half *a* Tun *of* Timber, *It bore* 5 *foot* square, 40 foot *long*; *It contein'd* 20 Tun *of* Timber, *most of it sold for* 20 *s.* per Tun; *besides that the* Boughs *afforded* 25 Cords *of* Fuel-wood; *This was call'd the* Lady-Oak: *Is't not pitty such goodly creatures should be devoted to* Vulcane? *&c.* So far this noble *Gent.* to which I would add *Diræ*, a deep *Execration* of *Iron-Mills*, and I had almost sayd *Iron-Masters* too

Quos

Quos ego; sed motos præstat componere——

for I should never finish to pursue these *Instances* through our once goodly *Magazines* of *Timber* for all uses, growing in this our native *Country*, comparable (as I said) to any we can produce of *elder times*; and that not only (though chiefly) for the encouragement of *Planters*, and *Preservers* of one of the most excellent, and necessary *Materials* in the *World* for the benefit of Man; but to evince the continu'd *vigor* of *Nature*, and to reproach the want of *Industry* in this *Age* of ours; and (that we may return to the *Argument* of this large *Chapter*) to assert the *procerity*, and *stature* of *Trees* from their very great *Antiquity*: For certainly, if that be true, which is by divers affirmed concerning the *Quercetum* of *Mambre* (where the *Patriarch* entertain'd his *Angelical* Guests) recorded by *Eusebius* to have continued till the time of *Constantine* the Great, we are not too prejudicately, to censure what has been produc'd for the proofs of their *Antiquity*; nor for my part, do I much question the *Authorities*: But let this suffice; what has been produc'd being only an historical *speculation*, of more *encouragement* haply then other *use*, but such as was pertinent to the *subject* under consideration, as well as what I am about to add concerning the *Texture*, and *similar* parts of the body of *Trees*, which may also hold in *shrubs*, and other *lignous* plants; because it is both a *curious*, and *Rational* account of their *Anatomization*, and worthy of the sagacious *Inquiry* of that incomparably learned Person, Dr. *Goddard*, as I find it entered amongst other of those precious *Collections* of this *Illustrious Society*.

19. The *Trunk* or bough of a *Tree* being cut *transversely* plain and smooth, sheweth several *Circles* or *Rings* more or less *Orbicular*, according to the external figure, in some *parallel* proportion, one without the other, from the *centre* of the *Wood* to the inside of the *Bark*, dividing the whole into so many *circular* spaces. These *Rings* are more large, gross, and distinct in colour and substance in some *kind* of *Trees*, generally in such as grow to a great bulk in a short time, as *Fir*, *Ash*, &c, smaller or less distinct in those that either not all, or in a longer time grow great; as *Quince*, *Holly*, *Box*, *Lignum-vitæ*, *Ebony*, and the like sad colour'd and hard *woods*; so that by the largeness, or smallnesse of the *Rings*, the quickness, or slowness of the growth of any Tree may perhaps at certainty be estimated.

These *spaces* are manifestly broader on the one side, then on the other, especially the more outer, to a double proportion, or more; the inner being neer an equality.

It is asserted, that the larger parts of these *Rings* are on the *South* and *sunny* side of the *Tree* (which is very rational and probable) insomuch, that by cutting a Tree *transverse*, and drawing a *diametre* through the broadest and narrowest parts of the *Rings*, a *Meridian* line may be described.

The outer spaces are generally narrower then the inner, not onely in their narrower sides, but also on their broader, compared with the same sides of the inner : Notwithstanding which, they are for the most part, if not altogether, bigger upon the whole account.

Of these spaces, the *outer* extremities in *Fir*, and the like *woods*, that have them larger and grosser, are more dense, hard, and compact; the inner more soft and spungy; by which difference of substance it is, that the *Rings* themselves come to be distinguished.

According as the bodies and boughs of *trees*, or several parts of the same, are bigger, or lesser, so is the *number*, as well as the *breadth* of the *circular* spaces greater or lesse; and the like, according to the *age*, especially the number.

It is commonly, and very probably asserted, that a Tree gains a *new* one every year. In the body of a great *Oak* in the *New-Forest*, cut *transversly even* (where many of the Trees are accounted to be some hundreds of years old) three, and four hundred have been distinguish'd. In a *Fir-tree*, which is said to have just so many rows of boughs about it, as it is of years growth, there has been observed just *one* lesse, immediately above one row, then immediately below : Hence some probable account may be given of the difference between the outer, and the inner parts of the *Rings*, that the outermost being newly produced in the *Summer*, the exterior superficies is condens'd in the *VVinter*.

20. In the young branches and twigs of *Trees* there is a *pith* in the middle, which in some, as *Ash*, and especially *Elder*, equals, or exceeds in dimensions the rest of the substance, but waxes lesse as they grow bigger, and in the great boughs and trunk scarce is to be found : This gives way for the growth of the inward *Rings*, which at first were lesse than the outer (as may be seen in any *shoot* of the first year) and after grow thicker, being it self *absum'd*, or perhaps converted into *VVood*; as it is certain *Cartilages* or *Gristles* are into *bones* (in the bodies of *Animals*) from which to sense they differ even as much as pith from *VVood*.

These *Rings* or spaces appearing upon transverse *Section* (as they appear *eliptical* upon *oblique*, and strait lines upon direct *Section*) are no other than the extremities of so many *Integuments*, investing the whole *Tree*, and (perhaps) all the boughs that are of the same age with any of them, or older.

The *growth* of *Trees Augmentation* in all dimensions is acquired, not onely by *accession* of a new *Integument* yearly, but also by the *Reception* of nourishment into the *Pores*, and substance of the rest, upon which they also become thicker; not only those towards the middle, but also the rest, in a thriving *Tree* : Yet the principal growth is between the *bark* and *body*, by *accession* of a new *Integument* yearly, as hath been mentioned : Whence the cutting of the *bark* of any tree or bough round about, will certainly kill it.

The *bark* of a *Tree* is distinguished into *Rings*, or Integuments no lesse than the *Wood*, though much smaller or thinner, and therefore

fore not distinguishable, except in the thick *barks* of great old *Trees*, and toward the *inside* next the *wood*; the outer parts drying and breaking with innumerable *fissures*, growing wider and deeper, as the body of the *Tree* grows bigger, and mouldering away on the out side.

Though it cannot appear by reason of the continual decay of it upon the account aforesaid; yet it is probable, the *bark* of a *Tree* hath had successively as many *Integuments* as the *wood*; and that it doth grow by acquisition of a *new one* yearly on the inside, as the wood doth on the out-side; so that the chief way, and conveyance of nourishment to both the *wood* and the *bark*, is between them both.

The least *bud* appearing on the body of a *Tree*, doth as it were make *perforation* through the several *Integuments* to the middle, or very neer; which part is as it were, a *Root* of the bough into the body of the *Tree*; and after becomes a *knot*, more hard then the other *wood*: And when it is larger, manifestly shewing it self also to consist of several *Integuments*, by the *circles* appearing in it, as in the body: more hard, probably; because streightned in room for growth; as appears by its distending, buckling, as it were, the *Integuments* of the *wood* about it; so implicating them the more; whence a *knotty* piece of *wood* is so much harder to cleave.

It is probable, that a *Cience* or Bud upon *Graffing*, or *Inoculating*, doth, as it were, *Root* it self into the *stock* in the same manner as the *branches*, by producing a kind of knot. Thus far the accurate *Doctor*.

21. To which permit me to *add* onely (in reference to the *Circles* we have been speaking of) what another curious *Inquirer* suggests to us; *namely*, That they are caus'd by the *Pores* of the *wood*, through which the *Sap* ascends in the same manner as betwen the *Wood* and the *Bark*; and that in some *Trees*, the *bark* adheres to the *wood*, as the *Integuments* of *Wood* cleave to one another, and may be separated from each other as the *bark* from the outward-most; and being thus *parted*, will be found on their *out-sides* to represent the *Colour* of the outer-most, contiguous to the *bark*; and on the *inner* sides; to hold the *Colour* of the *inner* side of the *bark*, and all to have a *deeper*, or *lighter* hue on their *inner-side*, as the *Bark* is on that part more or less *tinged*; which *tincture* is suppos'd to proceed from the *ascendent Sap*. Moreover, by cutting the *branch*, the ascending *Sap* may be examin'd as well as the *Circles*: It is probable, the more frequent the *Circles*, the *larger*, and more copiously the *liquor* will ascend into it; the *fewer*, the sooner descend from it. That a *Branch* of three *Circles* cut off at *Spring*, the *Sap* ascending will be found at *Michaelmasse* ensuing; cut again in the same *branch*, or another of equal bigness, to have *one* more than it had at *Spring*; and either at *Spring* or *Fall* to carry a *Circle* of *Pricks* next the *bark*, at other seasons a *circle* of *wood* onely next it. But *here* the Comparison must be made with *distinction*; for some *Trees* do probably shoot new *tops* yearly till a certain period, and not after; and *some* have perhaps their *Circles*

cles in their *branches* decreased from their *Bodies* to the extreamity of the *branch*, in such *Oeconomy* and Order; that (for instance) an *Apple-tree shoot* of this year has one *Circle* of *Pricks* or *wood* less, than the *Graft* of two years growth; and that of two years growth, may the next year have one *Circle* more than it had the last year; but this onely till that *Branch* shoot no more *Grafts*, and then 'tis doubtful whether the outmost *twig* obtain any more *Circles*, or remain at a *stay*, onely *nourished*, not *augmented* in the *Circles*. It would also be inquir'd, whether the *Circles* of *Pricks* increase not till *Midsummer* and after, and the *Circles* of *Wood* from *thence*, to the following *Spring*? But this may suffice, unless I should subjoyn.

22. The *vegetative* motion of *Plants*, with the *diagrams* of the *Jesuite Kercher*, where he discourses of their stupendious *Magnetisms*, *&c.* could there any thing material be added to what has already been so ingeniously inquir'd into: therefore let us proceed to their *Felling*.

Felling. 23. It should be in this *status*, vigour and perfection of Trees, that a *Felling* should be celebrated; since whiles our *Woods* are *growing* it is pity, and indeed too soon; and when they are *decaying*, too late: I do not pretend that a man (who has occasion for *Timber*) is obliged to attend so many ages ere he fell his *Trees*; but I do by this infer, how highly neceessary it were, that men should perpetually be *Planting*; that so *posterity* might have *Trees* fit for their service of *competent*, that is, of a *middle* growth and age, which it is impossible they should have, if we thus continue to destroy our *Woods*, without this providential *Planting* in their stead, and *felling* what we do cut down, with great discretion, and regard of the future.

24. Such therefore as we shall perceive to *decay* are first to be pick'd out for the *Ax*; and then those which are in their state, or approaching to it; but the very thriving, and manifestly improving, indulg'd as much as possible. But to explore the goodness and sincerity of a *standing-Tree*, is not the easiest thing in the world; we shall anon have occasion to mention my L. *Bacon's* Experiment to detect the *hollowness* of *Timber*: But there is doubtless none more infallible, than the *boring* it with a middling *Piercer* made *Auger* fashion, and by frequent pulling out, and examining what substance comes along with it, as those who bore the Earth to explore what *Minerals* the place is impregn'd with, and as sound *Cheeses* are tasted: Some again there are who by digging a little about the *Roots* will pronounce shrewdly concerning the *state* of a *Tree*; and if they find him perish'd at the *top* (for *Trees dye* upward as Men do from the *feet*) be sure the cause lies deep, for 'tis ever a mark of great decay in the *Roots*. There is also a swelling *Vein* which discovers it self eminently above the rest of the *stem*, though like the rest, invested with *barks*, and which frequently circles about and embraces the *tree*, like a branch of *Ivy*, which is an infallible indication of *Hollowness* and hypocrisie within.

25. The

25. The time of the *year* for this destructive *work* is not usually till about the end of *April* (at which season the *bark* does commonly rise freely) though the opinions and practise of men have been very different: *Vitruvius* is for an *Autumnal fall*; others advise *December* and *January*: *Cato* was of opinion *trees* should have first born their *fruit*, or, at least, not till full *ripe*, which agrees with that of the *Architect*: And though Timber *unbarked* be indeed more obnoxious to the *Worm*, and to contract somewhat a darker hue (which is the reason so many have commended the *season* when it will most freely *strip*) yet were this to be rather consider'd for such *trees* as one would leave *round*, and *unsquar'd*; since we find the wild *Oak*, and many other sorts, *fell'd* over late, and when the *sap* begins to grow proud, to be very subject to the *worm*; whereas, being cut about *mid-Winter*, it neither *casts*, *rifts*, nor *twines*; because the cold of the *Winter* does both dry, and consolidate; whiles in *spring*, and when pregnant, so much of the virtue goes into the *leaves* and *branches*: Happy therefore were it for our *Timber*, some real *Invention* of *Tanning* without so much *Bark* (as the Honourable Mr. *Charles Howard* has most ingeniously offer'd) were become universal, that Trees being more early felled, the *Timber* might be better *season'd* and condition'd for its various *Uses*. But as the custom is, men have now time to *fell* their *Woods*, even from *Mid-winter* to the *spring*; but never any after the *Summer Solstice*.

26. Then for the *Age* of the *Moon*, it has religiously been observ'd; and that *Dianas* presidency in *Sylvis* was not so much celebrated to credit the *fictions* of the *Poets*, as for the Dominion of that moist *Planet*, and her influence over *Timber*: For my part, I am not so much inclin'd to these *Criticisms*, that I should altogether govern a *Felling* at the pleasure of this mutable *Lady*; however there is doubtless some regard to be had,

Nor is't in vain *Signs* fall and rise to note. *Nec frustra signorum obitus speculamur, & ortus.*

The *Old Rules* are these:

Fell in the *decrease*, or four dayes after *conjunction* of the two great *Luminaries*; some the last quarter of it; or (as *Pliny*) in the very article of the *change*, if possible; which hapning (saith he) in the last day of the Winter *Solstice*, that *Timber* will prove *immortal*: At least should it be from the *twentieth* to the *thirtieth* day, according to *Columella*: *Cato* four dayes after the *Full*, as far better for the growth: But all *viminious* Trees *silente Lunâ*; such as *Sallies*, *Birch*, *Poplar*, &c. *Vegetius* for *Ship timber*, from the *fifteenth* to the *twenty-fifth*, the *Moon* as before; but never during the *Increase*, Trees being then most abounding with moisture, which is the onely source of putrefaction: And yet 'tis affirm'd upon unquestionable *Experience*, that *Timber* cut at any *season* of the *year*, in the *Old Moon*, or last *Quarter*, when the *Wind* blows *Westerly*; proves as *sound*, and good as at any other *period* whatsoever; nay,

all

all the whole *Summer* long, as in any *Month* of the *Year*; which for that it may be of great *use* on some publike *emergencies*, I thought fit to communicate.

27. Then for the *temper*, and time of *day*: The *Wind* low, neither *East* nor *West* (but *West* of the two) the *East* being most pernicious, and exposing it to the *worms*; and for which the best cure is, the plentiful sobbing it in *water*; neither in *frosty*, *wet*, or *dewy* weather; and therefore never in a Fore-noon. Lastly, touching the *species*; Fell *Fir* when it begins to spring; not only because it will then best quit its *coat* and strip; but for that they hold it will never decay in *water*; which howsoever *Theophrastus* deduce from the old Bridge made of this material over a certain River in *Arcadia*, cut in this *season*, is hardly sufficient to satisfie our inquiry.

28. Previous to this work of *Felling* is the advice of our Countryman *Markham*, and it is not to be rejected: Survey (*saith he*) your *Woods* as they stand, immediately after *Christmas*, and then divide the *species* in your mind; (I add rather in some Note-Book, or *Tablets*) and consider for what *purposes* every several *kind* is most *useful*, which you may find in the several *Chapters* of this *Discourse* under every *Head*. After this, reckon the *bad* and *good* together, so as one may put off the other, without being forc'd to glean your *Woods* of all your best *Timber*. This done (or before) you shall acquaint your self with the *marketable prices* of the *Countrey* where your *Fell* is made, and that of the several *sorts*; as what so many *inches* or *foot square* and *long* is worth for the several imployments: What *Planks*, what other scantlings, for so many *Spoaks*, *Naves*, *Rings*, *Pales*, *Spars*, *&c.* as suppose it were *Ash*, to set apart the *largest* for the *Wheel-wright*, the *smallest* for the *Cooper*, and that of ordinary scantling for the *Ploughs*, and the *brush* to be *kidded*, and sold by the hundred, or thousand, and *so* all other sorts of *Timber*, *viz. large*, *middling stuff*, and *Poles*, &c. allowing the *waste* for the charges of *Felling*, *&c.* all which you shall *compute* with greater certainty, if you have leisure, and will take the pains to examine some of the *trees* either by your own *Fathom*; or (more accurately) by *girting* it about with a *string*, and so reducing it to the *square*, *&c.* by which means you may give a neer guess: or, you may mark such as you intend to *Fell*; and then begin your *sale* about *Candlemas* till the *Spring*; before which you must not (according as our *Custom* is) lay the *Ax* to the *Root*; though some for particular imployments, as for *Timber* to make *Plows*, *Carts*, *Axel-trees*, *Naves*, *Harrows*, and the like *Husbandry-tools*, do frequently cut in *October*.

Being now entering with your *Workmen*, one of the first, and most principal things, is, the skilful *disbranching* of the *Boal* of all such *Arms* and *Limbs* as may endanger it in the *Fall*, wherein much forecast and skill is requir'd of the *Wood-man*; so many excellent *trees* being utterly spoiled for want of this onely consideration: And therefore in arms of *Timber*, which are very great, chop a *nick* under it close to the *Boal*, so meeting it with the downright strokes, it will be sever'd without *splicing*.

29. Some

29. Some there are who cut a *kerf* round the body, almost to the very *pitch*, or heart, and so let it remain a while; by this means to drain away the moisture, which will distill out of the wounded *Veins*, and is chiefly proper for the *moister* sort of Trees: And in this work the very *Ax* will well tell you the difference of the *Sex*; the *Male* being so much harder, and browner than the *Female*: But here (and wherever we speak thus of *Plants*) you are to understand the *analogical*, not proper distinction.

30. But that none may wonder why in many *Authours* of good note, we find the *Fruit-bearers* of some *Trees* call'd *Males*, and not rather *Females*, as particularly the *Cypresse*, &c. This prepostrous *denomination* had I read it sourse from very antient *Custom*, and was first begun in *Ægypt* (*Diodorus* sayes in *Greece*) where we are told, that the *Father* onely was esteem'd the sole *Authour* of *Generation*; the *Mother* contributing only *Receptacle* and *Nutrition* to the *Off-spring*, which legitimated their *mixtures* as well with their *Slaves* as *Free-women*: And upon this account it was, that even *Trees* bearing *Fruit*, were amongst them reputed *Males*, and the *sterile* and barren ones, for *Females*; and we are not ignorant, how learnedly this *doctrine* has been lately reviv'd by some of our most celebrated *Physicians*: But since the same *Arguments* do not altogether quadrate in *Trees*, where the *Coition* is not so sensible (whatever they pretend of the *Palms*, *&c.* and other amorous intertwining of *Roots*) in my opinion we might with more *reason* call *that* the *Female* which bears any eminent *Fruit* or *Seed*, and them *Males* who produce none: But sometimes too the *rudenesse*, or lesse *asperity* of the *leaves*, *bark*, and *grain*, nay their *Medical* operations, may deserve the *distinction*; to which *Aristotle* adds *Branchinesse*, lesse *moisture*, quick *maturity*, *&c. l.* 1. *de Pl. c.* 3. All which seems to be most conspicuous in *Plum-trees*, *Hollys*, *Ashes*, *Quince*, *Pears*, and many other sorts; not to insist on such as may be compell'd even to change, as it were, their *Sex* by *Graffing* and *artificial* Improvements: But I onely hint it, and return to

31. *Felling*, which should be as *close* to the *ground* as possible may be, if you design a *renascency* from the *Roots*; unlesse you will *grub* for a total destruction, or the use of that part we have already mention'd, so far superiour in goodnesse to what is more remote from the *Root*, and besides the longer you cut and convert the *Timber*, the better for many *uses*. Some are of opinion, that the *seedling Oak* should never be cut to improve his *boal*; because, say they, it produces a reddish wood not so acceptable to the *Workman*; and that the *Tree* which grows on the *head* of his *Mother* does seldom prove good *Timber*: It is observ'd, indeed, that *one* foot of *Timber* near the *Root* (though divers I know who otherwise opine) and (which is the proper *kerfe*, or cutting place) is worth *three* farther off: And haply, the *successor* is more apt to be tender, then what was cut off to give it place; but let this be enquir'd into at leisure.

32. When your *Tree* is thus prostrate, strip off the *bark*; and

set it *so* as it may best dry; then cleanse the *Boal* of the *branches* which were left, and *saw* it into lengths for the *squaring*, to which belongs the *Measure*, and *Girth* (as our *Workmen* call it) which I refer to the *Buyer*, and to many subsidiary *Books* lately *Printed*, wherein it is taught by a very familiar *Calcule Mechanical* and easie Method.

33. But by none in my apprehension set forth, in a more *facile* and *accurate* way than what that Industrious *Mathematician* Mr. *Leybourn* has Publish'd, in his late *Line of Proportion made Easie*, and other his *Labours*; where he treats as well of the *Square* as the *Round*, as 'tis applicable to *Boards* and *Superficials*, and to *Timber* which is *hew'd* or lesse rough, in so *Easie* a *Method*, as nothing can be more desired. I know our ordinary *Carpenters*, *&c.* have generally upon their *Rulers* a *Line*, which they usually call *Gunters-Line*; but they few of them, understand how to Work from it: And divers *Countrey Gentlemen*, *Stewards*, and *Wood-men*, when they are to *Measure* Rough *Timber* upon the *Ground*, confide much to the *Girt*, which they do with a *string* at about four, or five foot distance from the Root or Great *Extream*: Of the *Strings* length, they take a *quarter* for the true *Square*, which is so manifestly erroneous, that thereby they make every *tree* so measur'd, more than a *fifth* part lesse than *really* it is. This *mistake* would therefore be reformed; and it were (I conceive) worth the *Seller's* while to inspect it accordingly: Their *Argument* is, That when the *Bark* of a Tree is stripp'd, and the *Body* hew'd to a *Square*, it will then hold out no more measure; that which is cut off being onely fit for *Fuel*, and the Expense of *Squaring* costs more than the *Chips* are worth. But let us however *Convince* them of this *Errour* by confronting Mr. *Leybourns Tables*.

PROB. I.

A *Tree being* 68 *Inches about*, to find how much thereof in *Length* will make one *foot square*.

SOL.

A fourth part of 60 *Inches*, is 15, which they take for the due *Square*; wherefore look for 15 *Inches* (*viz.* one *foot* three *Inches*) in the first *Column* of the first *Table*; and opposite to it in the second *Column*, you shall find 7 *Inches*, 6 tenth parts of an *Inch* (which is somewhat above *half* an *Inch*) will make *one foot square*. Again,

PROB. II.

A *Tree* being 136 *Inches* about, and 9 *Foot* in length, to know how many *solid Feet* the *Tree* contains?

SOL.

SOL.

The fourth part of 136 is 34 *inches* in the first *Column* of the second *Table*, and 9 foot in the head of it; and opposite to the 34 *inches*, and under 9 *foot*, you shall find 72. 25. (*viz.* 72 foot $\frac{1}{4}$) and for so much you may sell it, and no more, which is yet less than the true *content* by above a fifth part.

But supposing (as they ought to do) there were no such *Waste* as is pretended; you will find by the third *Table*, how much in length of any *Cylendrical Timber*, whose *Girt* is known, will make a *foot solid*, and consequently, detect the *Error* of the *former* customary practise.

PROB. III.

A *Tree* being 60 *Inches* circumference, to know how much thereof will make a *cubical foot*.

SOL.

Find 60 *inches* in the first *Column*; and opposite to it in the second *Column*, you shall find 0-6-0 which is to say, 6 *inches* onely: The *Consectarie* is, that 6 *inches* in length of a *Tree* 60 inches *circumference*, will make a *foot* solid: Whereas by the other usual procedure, you found there must be 7 *inches* and above *half* an *inch*, to make so much; which is above an *inch* and *half* too much in every *foots* length, and what that amounts to in many *feet* 'tis easy to imagine.

So suppose a *Tree* be but 29 *inches* in *circumference*, the same *Table* will in like manner shew, that it requires but 1 *foot* 2 *inches* and 3 tenth *parts* of an *inch* in length, to make it a *foot* solid of *Timber*; and thus of any number as far as you will inlarge your *Table*.

But then imagine that the *sides* of the *square* at the *extremities* of squar'd *Timber* are unequal, as frequently it happens, by sometimes 5, 6, 10, or more *inches* difference: Some *Artificers* think they encounter this well enough by *adding* the *two sides* together, and taking the *moitie* of the side for the *true* square: But this is as *erroneous* as the other; especially, if the *sides* differ considerably. *v. g.* Let one *side* be 30 *inches*, and the *other* 138, these added, make 213, the half whereof is $106\frac{1}{2}$, which they estimate for the *true* square; whereas in truth, the *right* square is 74 *inches*, and one tenth *part*; which demonstrates the *error* to be 32 *inches* and 4 *tenths*.

To reforme therefore this egregious *mistake*, the fourth *Table* may be *calculated* to what number of *inches* you desire: *Example.*

PROB. IV.

One side of a *square* of *Timber* containing 16 *inches*, and the *other* 25: to find the *side* of a *square* equal unto it.

SOL.

First, find 16 *inches* in the fourth *Table*, opposite to it you have *this* number 120411. Then find out 25 *inches*, and opposite to that occurs 139794 which *added*, produces 260205, and the *half* of it 130102½. Find in the *Table* this *Number* (or the neerest you can to it) and you will see it to stand against 20 *inches*; which is the *true square* of such an *unequal'd*-sided piece of *Timber*.

16—120411
25—139794
sum—260205
20—130102½

Note, In these *Instances* 'tis suppos'd the *Tree measur'd* to carry the *same* Proportion of *square* throughout the *Piece*, which in almost all *Trees* that are *considerably* long, does not hold, by reason of its continual *tapering*, which must needs cause a great *difference* in the *squares* at either extream. Our common *Workemen* do, to adjust *this*, for the most part, choose the most *likely* place about the *middle* of the *Tree*, and take its *square* there; But *this* is also an *Error*: Therefore in such *Trees*, measure the *square* at *both ends*, and *add* the *sides* of the *two squares* together, and *half* that *length* shall be the *true square* which the *Tree* does carry throughout. *E. g.*

Suppose a *Tree* have that side of the *square* at the *But-end* 32 *inches*, and at the *smaller* end 22 onely; Those *added*, will make 55 *inches*, and the *moitie* of *that* 27½, which is the *true side* of the *square*, with which, and the *length*, you may find by the second *Table* the just *content*.

And, in case your *Tree* be *longer* than the *Table* provides for (as for example in this second *Table* it proceeds but to 10 *foot*) take the *half*, or so many times 10 *foot*, as its *length* contains, and the odd *feet*, if they happen, by themselves. *V. g.*

Suppose a *Tree* being 31 *inches* square, is 47 foot long; have recourse to 10 *foot* in the second *Table*, and opposite to 31 in the *inch Column*, you'l find 64 *foot*, 60 *parts* under the *Column* 10: put *this down* as many times as any *tens* occur in your 47 *foot* (which was the length of that *Tree*, and by the same *Table* the *odd* 7 will give you 45 *feet* 22 *parts*, which sum'd together, amount to 303 *feet*, 62 parts, *viz.* half a *foot* and *half* a quarter of a *foot*. By this *Method* proceed for any *length* whatsoever.

There remains but *one operation* more, which our *Timber man* can much stand in *need* of *direction* in; and that is, for the *Measure* of *Planks*; because we have *occasion* sometimes to *saw* them in the *Wood*: We will therefore *add* one *Table* more of *that*, and so dismiss him.

PROB.

PROB. V.

A *Plank* or *Board* being 9 *inches* broad: to find how much in *length* will make *one* foot.

SOL.

First find out 9 *inches* in the first *Column*; opposite to that, in the second *Column*, you shall meet 1. 4. 0. which imports 1 *foot*, 4 *inches*: so much then in *length* of a *Plank* or *Board* 9 *inches* broad, must go to make a *foot*: So as every 16 *inches* in *length*, is a foot of *Plank*, and consequently, every 8 *inches*, half a *foot*; every 4 *inches* a *quarter*, &c. Thus again, if a *Board* hold 2 *foot* and 3 *inches* in breadth; 5 *inches* and 3 tenth *parts* of an *inch* in length will make a *square superficial foot* of *Plank*, *& sic de cæteris*.

TABLE I.

The *Square* of the *End* of *Timber* in *Feet* and *Inches*.			The *length* of a *Foot solid* in *Feet*, *Inches* and *parts* of *Inches*.	
F.	In.	F.	In.	Pts.
0.	6	4	0	0
	7	2	11	2
	8	2	3	0
	9	1	9	3
	10	1	3	3
	11	1	2	3
1.	0	1	0	0
	1	0	10	2
	2	0	8	8
	3	0	7	6
	4	0	6	7
	5	0	5	9
	6	0	5	3
	7	0	4	8
	8	0	4	3
	9	0	3	9
	10	0	3	5
	11	0	3	3
II.	0	0	3	0
	1	0	2	8
	2	0	2	6
	3	0	2	3
	4	0	2	2
	5	0	2	1
	6	0	1	9
	7	0	1	8
	8	0	1	7
	9	0	1	6
	10	0	1	5
	11	0	1	4
III.	0	0	1	3

TABLE

TABLE II.

Square of Timber in Inches, and half-Inches.

Inch.	The length of the Timber.									
	1		2		3		4		5	
	F.	Pr.	F.	Pr.	F.	Pr.	F.	Pr.	F.	Pr.
-	0	00	0	00	0	00	0	01	0	01
1	0	01	0	01	0	02	0	03	0	03
-	0	01	0	03	0	05	0	06	0	08
2	0	03	0	05	0	08	0	11	0	14
-	0	04	0	08	0	13	0	17	0	21
3	0	06	0	12	0	18	0	25	0	31
-	0	08	0	17	0	25	0	34	0	42
4	0	11	0	22	0	33	0	44	0	55
-	0	14	0	28	0	42	0	56	0	70
5	0	17	0	25	0	52	0	69	0	81
-	0	21	0	42	0	63	0	84	1	05
6	0	25	0	50	0	75	1	00	1	25
-	0	29	0	58	0	88	1	17	1	46
7	0	34	0	68	1	02	1	36	1	70
-	0	39	0	78	1	17	1	56	1	95
8	0	44	0	89	1	33	1	77	2	22
-	0	50	1	00	1	50	1	01	2	51
9	0	56	1	12	1	68	2	25	2	81
-	1	63	1	25	1	88	2	51	3	13
10	1	69	1	39	2	08	2	47	3	47
-	1	76	1	53	2	29	3	06	3	82
11	1	84	1	68	2	52	3	36	4	20
-	0	92	1	84	2	76	3	67	4	59
12	1	00	2	00	3	00	4	00	5	00
-	1	08	2	17	3	25	4	34	5	42
13	1	17	2	35	3	51	4	69	5	87
-	1	26	2	53	3	80	5	06	6	33
14	1	36	2	72	4	08	5	44	6	80
-	1	46	2	92	4	38	5	80	7	30
15	1	55	3	12	4	68	6	25	7	81
-	1	67	3	33	5	00	6	67	8	34
16	1	78	3	55	5	33	7	11	8	89
-	1	89	3	78	5	67	7	56	9	45
17	2	01	4	01	6	02	8	03	10	03
-	2	13	4	25	6	38	8	51	10	63
18	2	25	4	50	6	75	9	00	11	25

TABLE III.

The *Circumference* of the *Tree* in *Inches.*

Cir.	F.	In.	Pt.
10	18	11	2
11	14	11	5
12	12	6	8
13	10	8	5
14	9	2	7
15	7	10	3
16	7	0	8
17	6	3	0
18	5	7	0
19	5	0	2
20	4	6	3
21	4	1	2
22	3	8	9
23	3	4	9
24	3	1	7
25	2	10	7
26	2	8	1
27	2	5	8
28	2	3	7
29	2	1	8
30	2	0	1
31	1	10	6
32	1	9	2
33	1	7	9
34	1	6	8
35	1	5	7
36	1	4	7
37	1	3	8
38	1	3	0
39	1	2	3
40	1	1	6
41	1	0	9
42	1	0	3
43	0	11	7
44	0	11	1
45	0	10	7
46	0	10	2
47	0	9	9
48	0	9	4
49	0	9	0
50	0	8	7

The *Circumference* of the *Tree* in *Inches.*

Cir.	F.	In.	Pt.
51	0	8	3
52	0	8	0
53	0	7	8
54	0	7	4
55	0	7	2
56	0	6	9
57	0	6	7
58	0	6	4
59	0	6	2
60	0	6	0
61	0	5	8
62	0	5	6
63	0	5	5
64	0	5	2
65	0	5	1
66	0	4	9
67	0	4	8
68	0	4	7
69	0	4	6
70	0	4	4
71	0	4	3
72	0	4	2
73	0	4	1
74	0	3	9
75	0	3	8
76	0	3	7
77	0	3	7
78	0	3	6
79	0	3	5
80	0	3	4
81	0	3	3
82	0	3	2
83	0	3	2
84	0	3	1
85	0	3	0
86	0	2	9
87	0	2	9
88	0	2	8
89	0	2	7
90	0	2	7
91	0	2	6

The *Circumference* of the *Tree* in *Inches.*

Cir.	F.	In.	Pt.
92	0	2	6
93	0	2	5
94	0	2	5
95	0	2	4
96	0	2	4
97	0	2	3
98	0	2	3
99	0	2	2
100	0	2	2

TABLE IV.

In.		In.		In.		In.	
1	000000	26	141497	51	170757	70	188081
2	030103	27	143136	52	171600	77	188649
3	047712	28	144715	53	172427	78	189209
4	062206	29	146239	54	173239	79	189762
5	069897	30	147712	55	174036	80	190309
6	077815	31	149136	56	174818	81	190848
7	084509	32	150525	57	175587	82	191381
8	090308	33	151851	58	176342	83	191907
9	095424	34	153147	59	177085	84	192428
10	100000	35	154406	60	177815	85	192941
11	104139	36	155630	61	178532	86	193449
12	107918	37	156820	62	179239	87	193952
13	111394	38	157978	63	179934	88	194448
14	114612	39	159106	64	180618	89	194939
15	117609	40	160205	65	181291	90	195624
16	120411	41	161278	66	181954	91	195904
17	123044	42	162325	67	182607	92	196378
18	125527	43	163346	68	183250	93	196848
19	127875	44	164345	69	183885	94	197312
20	130102	45	165321	70	184509	95	197772
21	132221	46	166275	71	185125	96	198217
22	134242	47	167209	72	185735	97	198677
23	136172	48	168124	73	186832	98	199122
24	138021	49	169019	74	186923	99	129563
25	139794	50	169897	75	187506	100	200000

TABLE V.

TABLE II.

The length of the Timber.

Inch.	6		7		8		9		10	
	F.	Pt.	F.	Pt.	F.	Pt.	F.	Pt.	F.	Pt.
-	0	01	0	01	0	01	0	02	0	02
1	0	04	0	05	0	05	0	06	0	07
-	0	09	0	11	0	13	0	11	0	16
2	0	17	0	19	0	22	0	25	0	28
-	0	26	0	30	0	34	0	39	0	43
3	0	37	0	43	0	49	0	56	0	62
-	0	51	0	59	0	68	0	76	0	85
4	0	66	0	78	0	89	0	99	1	11
-	0	84	0	98	1	12	1	26	1	40
5	1	04	1	22	1	39	1	56	1	74
-	1	26	1	47	1	68	1	89	2	10
6	1	30	1	55	2	00	2	25	2	50
-	1	76	2	05	2	34	2	64	2	93
7	2	04	2	38	2	72	3	06	3	40
-	2	34	2	73	3	12	3	51	3	90
8	2	66	3	11	3	55	3	99	4	44
-	3	01	3	51	4	01	4	52	5	02
9	3	37	3	93	4	49	5	06	5	62
-	3	76	4	29	5	01	5	64	6	27
10	4	16	4	86	5	55	6	24	6	94
-	4	59	5	35	6	12	6	88	7	65
11	5	04	5	88	6	72	7	56	8	40
-	5	51	6	43	7	35	8	27	9	19
12	6	00	7	00	8	00	9	00	10	00
-	6	51	7	51	8	68	9	76	10	85
13	7	04	8	22	9	39	10	56	11	74
-	7	59	8	86	10	13	11	39	12	66
14	8	16	9	53	10	89	12	25	13	61
-	8	76	10	22	11	68	13	14	14	60
15	9	37	10	93	12	49	14	06	15	62
-	10	01	11	67	13	34	15	01	16	68
16	10	67	12	44	14	22	16	00	17	78
-	11	34	13	24	15	13	17	02	18	91
17	12	04	14	05	16	05	18	06	20	07
-	12	76	14	89	17	01	19	14	21	27
18	13	50	15	75	19	00	20	25	22	50

Square of the Timber in Inches and half-Inches. * * *

* *Note that the short lines of the Inch-Column, between the Figures* 1 - 2 - 3 *&c. do signifie half-Inches.*

Place this between pag. 170, and 171.

TABLE II.

Square of the Timber in Inches and half-Inches.	The length of the Timber.									
	In.	1		2		3		4		5	
		F.	Pt.	F.	Pt.	F.	Pt.	F.	Pt.	F.	Pt.
	-	2	38	4	75	7	13	9	51	11	88
	19	2	51	5	01	7	52	10	03	12	53
	-	2	64	5	28	7	82	10	56	13	20
	20	2	78	5	55	8	33	11	11	13	89
	-	2	92	5	83	8	75	11	67	14	59
	21	3	06	6	12	9	18	12	25	15	31
	-	3	11	6	42	9	63	12	84	16	05
	22	3	36	6	72	10	08	13	44	16	80
	-	3	51	7	03	10	55	14	06	17	58
	23	3	67	7	34	11	02	14	69	18	36
	-	3	33	7	67	11	50	15	34	19	17
	24	4	00	8	00	12	00	16	00	20	00
	-	4	16	8	33	12	50	16	66	20	83
	25	4	34	8	68	13	02	17	36	21	70
	-	4	51	9	01	13	54	18	05	22	56
	26	4	69	9	39	14	08	18	77	23	47
	-	4	88	9	75	14	63	19	51	24	38
	27	5	06	10	12	15	19	20	25	25	31
	-	5	25	10	50	15	75	21	00	26	25
	28	5	44	10	89	16	33	21	78	27	22
	-	5	67	11	34	17	01	22	68	28	35
	29	5	84	11	68	17	52	23	36	29	20
	-	6	04	12	08	18	13	24	17	30	21
	30	6	25	12	50	18	75	25	00	31	25
	-	6	46	12	92	19	38	25	84	32	30
	31	6	67	13	34	20	02	26	69	33	36
	-	6	89	13	78	20	67	27	56	34	45
	32	7	11	14	22	21	33	28	44	35	55
	-	7	33	14	66	21	99	29	33	36	66
	32	7	56	15	12	32	68	30	24	37	81
	-	7	78	15	56	23	34	31	12	38	90
	34	8	03	16	05	24	06	32	11	40	14
	-	8	26	16	52	24	79	33	05	41	31
	35	8	54	17	01	25	52	34	03	42	53
	-	8	70	17	50	26	25	35	00	43	75
	36	9	00	18	00	27	00	36	00	49	00

TABLE. II.

Square of the Timber in Inches and half-Inches.	The length of the Timber.									
	In.	6		7		8		9		10	
		F.	Pt.	F.	Pt.	F.	Pt.	F.	Pt.	F.	Pt.
	-	14	26	16	64	19	01	21	39	23	77
	19	15	04	17	55	20	05	22	56	25	07
	-	15	64	18	49	21	33	23	77	26	41
	20	16	67	19	40	22	22	25	00	27	78
	-	17	51	20	42	23	34	26	26	29	18
	21	18	37	21	43	24	49	27	56	30	62
	-	19	26	22	47	25	68	28	89	32	10
	22	20	16	23	53	26	89	30	25	33	61
	-	21	09	24	61	28	13	31	64	35	16
	23	22	04	25	71	29	38	33	06	36	73
	-	23	01	26	84	30	68	34	51	38	35
	24	24	00	28	00	32	00	36	00	40	00
	-	24	99	29	16	33	33	37	49	41	66
	25	26	04	30	38	34	71	39	06	43	40
	-	27	08	31	59	36	10	40	62	45	13
	26	28	16	32	86	37	55	42	24	46	94
	-	29	26	34	14	39	01	43	89	48	77
	27	30	38	35	44	40	50	45	57	50	63
	-	31	50	36	75	42	00	47	25	52	50
	28	32	67	38	11	43	56	49	00	54	45
	-	34	02	39	69	45	36	51	03	56	70
	29	35	04	40	88	46	72	52	56	58	40
	-	36	26	42	30	48	34	54	39	60	43
	30	37	50	43	75	5	00	56	25	62	50
	-	38	76	45	22	51	68	58	14	64	60
	31	40	04	46	71	53	36	60	06	66	
	-	41	3	48	23	55	11	62	01	68	
	32	42	6	49	78	56	89	63	99	71	11
	-	43	99	51	33	58	66	65	99	73	33
	33	45	37	52	93	60	49	68	06	75	62
	-	46	68	54	46	62	24	70	02	78	80
	34	48	17	56	19	64	22	72	25	80	28
	-	49	58	57	84	66	10	74	37	82	63
	35	51	04	59	55	68	05	76	56	85	07
	-	52	50	61	25	70	00	78	75	87	50
	36	45	00	63	00	72	00	81	00	90	00

TABLE V.

The Breadth *of* Plank *in* Feet *and* Inches.

F.	In.
0	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
I	0
	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
II	0
	1
	2
	3
	4
	5
	6
	7
	8
	9
	10
	11
III	0

The *length* of a *Foot square*, in *Feet* and 10th. *part* of *Inches*.

F.	In.	Pts.
12	0	0
6	0	0
4	0	0
3	0	0
2	4	8
2	0	0
1	8	6
1	6	0
1	4	0
1	2	4
1	1	1
1	0	0
0	11	8
0	10	3
0	9	6
0	9	0
0	8	5
0	8	0
0	7	6
0	7	2
0	6	8
0	6	5
0	6	2
0	6	0
0	5	8
0	5	5
0	5	3
0	5	1
0	5	0
0	4	8
0	4	7
0	4	5
0	4	4
0	4	2
0	4	1
0	4	0

34. If you are to remove your *Timber*, let the *Dew* be first *off*, and the *South-wind* blow before you *draw* it: neither should you by any means put it to use for three, or four *months* after, unless great necessity urge you, as it did *Duilius*, who in the *Punic* War built his *Fleet* of *Timber* before it was *season'd*, being not above two months from the very *Felling* to the Launching: and as were also those *Navies* of *Hiero* after forty days; and that of *Scipio*, in the third *Carthaginean* War, from the very *Forest* to the *Sea*. *July* is a good time for bringing home your *fell'd Timber*: But concerning the *Time* and *Season* of *Felling*, a just *Treatise* might be *written*: Let the *Learned* therefore consult *Vitruvius* particularly on this *subject*, *l.* 2. *c.* 19. Also *M. Cato c.* 17. *Plin. l.* 16. *c.* 31. *Constantinus* and *Heron. l.* 3. *de RR. Veget. l.* 4. *c.* 35. *Columella l.* 3. *c.* 2. but especially the most ample *Theophrastus* φυτῶν ἱστορίας. *l.* 5. Note, that a *Tun* of *Timber* is *forty* solid *Feet*, a *Load* fifty.

35. To make excellent *Boards* and *Planks*, 'tis the advice of some, you should *Bark* your *Trees* in a fit season, and so let them stand *naked* a full year before the *felling*; and in some cases, and grounds, it may be profitable: But let these, with what has been already said in the foregoing *Chapters* of the several *kinds*, suffice for this *Article*: I shall add one *Advertisement* of *Caution* to those *Noble persons*, and others who have *Groves* and *Trees* of ornament neer their *houses*, and in their *Gardens* in *London*, and the *Circle* of it; especially, if they be of great *stature*, and well grown; such as are the *Groves* in the several *Inns* of *Court*; nay, even that (comparatively, new *Plantation*) in my Lord of *Bedfords* Garden, *&c.* and wherever they stand in the more interiour parts of the *City*; that they be not over hasty, or by any means perswaded to cut down any of their *old Trees*, upon hope of new more flourishing *Plantations*; thickning, or repairing deformities; because they grew so well when first they were set: It is to be consider'd how exceedingly that pernicious *smoak* of the *Sea-coal* is increas'd *in*, and about *London* since they were first *planted*, and the buildings environing them, and inclosing it in amongst them, which does so universally contaminate the *Air*, that what *Plantations* of *Trees* shall be now begun in any of those places, will have much ado, great difficulty, and require a long time, to be brought to any tolerable perfection: Therefore let them make much of what they have; and though I discourage none, yet I can animate none to *cut* down the *old*.

36. And here might now come in a pretty *speculation*, what should be the *Reason* after generall *Fellings* and *Extirpations* of vast *Woods* of one *species*, the next *spontaneous* succession should be of quite a different *sort*? We see indeed something of this in our *Gardens* and *Corne fields* (as the best of *Poets* witnesses) but that may be much imputed to the alteration, by improvement, or detriment of the *Soyle* and other *Accidents*: whatever the *Cause* may be, since it appears not in any universal decay of *Nature* (sufficiently exploded) I shall onely here produce matter of *Fact*, and that it ordinarily

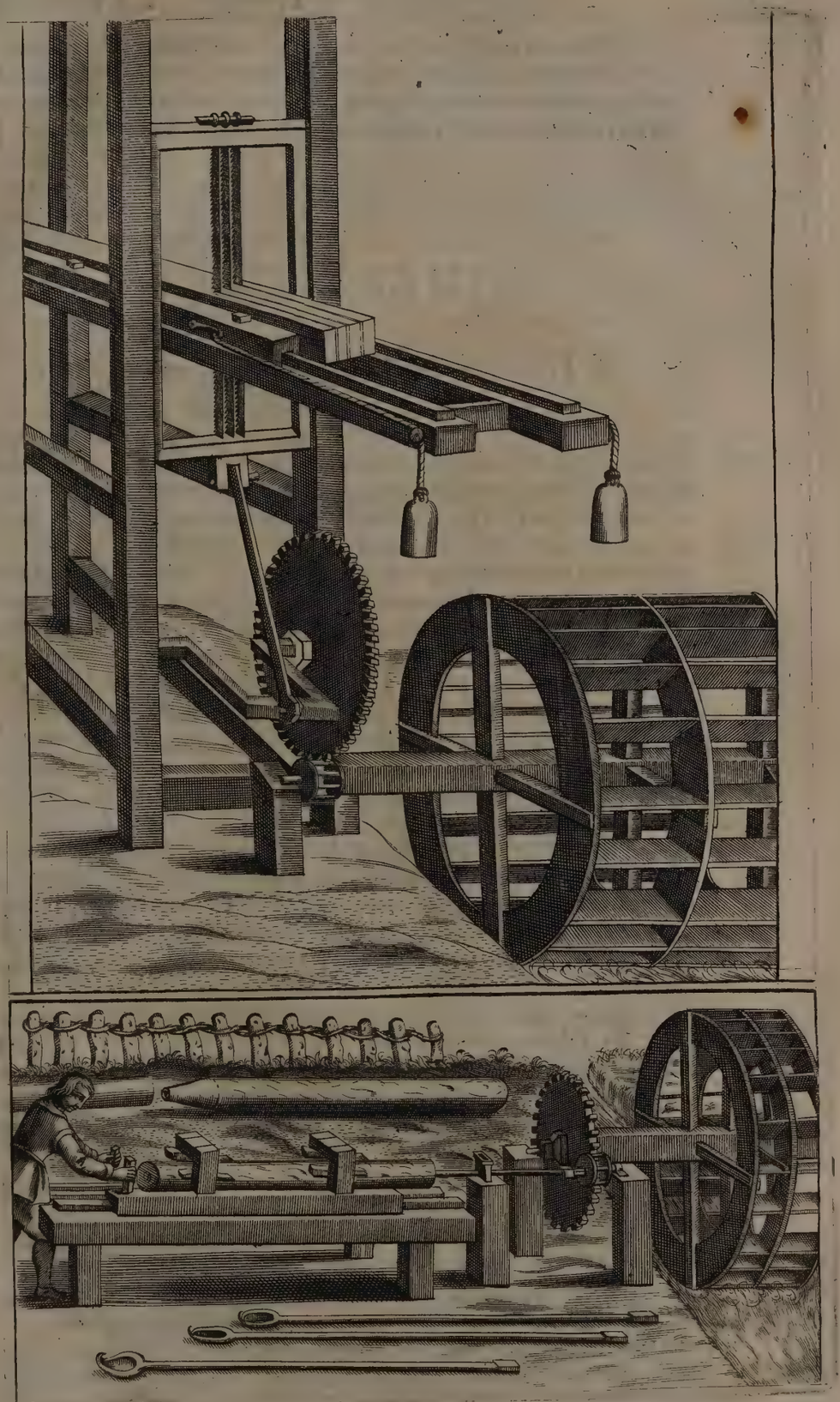
rily happens: As in some goodly *Woods* formerly belonging to my *Grandfather* that were all of *Oak*; after felling, they universally sprung up *Beech*; and 'tis affirm'd by general Experience, that after *Beech*, *Birch* succeeds; as in that famous *Wood* at *Darnway* on the *River Tindarne* in the *Province* of *Moray* in *Scotland*, where nothing had grown but *Oak* in a *Wood* three *miles* in *length*, and happily more *Southerly*, it might have been *Beech*, and not *Birch* 'till the third *degradation*. *Birches* familiarly grow out of *old* and decay'd *Oaks*; but whence this *Sympathy* and affection should proceed, is more difficult to resolve, in as much as we do not detect any so prolifical, and eminent *Seed* in that *Tree*. Some *Accidents* of this nature may be imputed to the *Winds*, and the *Birds* who frequently have been known to waste and convey *Seeds* to places widely *distant*, as we have touch'd in the *Chapter* of *Firs*, &c. *Sect.* 4. *Holly* has been seen to grow out of *Ash*, as *Ash* out of severall *Trees*, especially *Hei-Thorn*; nay, in an old rotten *Ash-stump*, in a *place* where no *Ashes* at all grew by many *miles* in the whole *County*: And I have had it confidently asserted by *Persons* of undoubted truth, that they have seen a *Tree* cut in the middle, whose *heart* was *Ash-wood*, and the exteriour part *Oak*, and this in *Northamptonshire*: And why not as well (though with something more difficulty?) as through a *Willow*, whose *Body* it has been observed to penetrate even to the *Earth*? obtruding the *Willow* quite out of its *place*, of which a pretty *Emblem* might be conceiv'd: But I pursue these *Instances* no farther, concluding this *Chapter* with the *Norway Engine*, or *Saw-Mill*, to be either *moved* with the force of *Water*, or *Wind*, &c. for the more expedite *cuting* and converting of *Timber*, to which we will add another, for the more facile *perforation* and boring of *Elms*, or other *Timber* to make *Pipes* and *Aquæducts*, and the excavating of *Columns* to preserve their *Shafts* from *splitting*, to which otherwise they are obnoxious.

The *Frames* of both these *Instruments* discover themselves sufficiently to the *eye*, and therefore will need the less description; There is yet this reformation from those which they use both in *Norway* and *Switzerland*; That whereas they make the *Timber* approach the *Sawes*, by certain indented *Wheels* with a *Rochet* (which is frequently out of order) there is in the *first Figure* a substitution of two *Counterpoises* of about three hundred pound weight, each, as you may see at A.A. fastning the *Cords* to which they append, at the extreams of *two* movable *pieces* of *Timber*, which slide on *two* other *pieces* of fixed *Wood*, by the ayd of certain small *Pullys*, which you may imagine to be within an *Hinge* in the *House* or *Mill*, by which means the *Weights* continually *draw*, and *advance* the moving *pieces* of *Wood*, and consequently the *Timber* to be *slit*, fastned 'twixt the said *Pieces*, towards the *Teeth* of the *Saws*, rising, and falling as the motion of the *Wheele* directs; And on this *Frame* you may put four or five *Saws*, or more if you please, and place them at what intervals you think fit, according to the dimensions which you designe in cutting the *Timber* for your *use*; and when the piece

is *sawn*, then one or two men with a *Lever*, must turn a *Roller*, to which there is annext a strong *Cord*, which will draw back the *Piece*, and lift up the *Counter-poise*; and so the *piece* put a little towards one side, direct the *Saws* against another.

The *second Figure* for *Boring*, consists of an *Ax-tree*, to which is fastned a *Wheel* of *six* and *thirty Teeth*, or more, as the velocity of the Water-motion requires; for if it be *slow*, more *Teeth* are requisite; There must also be a *Pinion* of *six*, turn'd by the said indented *Wheel*: Then to the *Ax-tree* of the *Pinion* is to be fixt a long *Auger*, as in *letter* A, which must passe through the *hole* B, to be opened and clos'd as occasion requires, somewhat like a *Turners Lathe*: The *Tree* or *piece* of *Timber* to be *Bored*, is to be plac'd on the *Frame* C D, so as the *Frame* may easily slide by the help of certain small *Wheels*, which are in the *hollow* of it, and turn upon strong *Pins*, so as the *Work-man* may shove forwards, or draw the *Tree* back, after 'tis fastned to the *Frame*; that so the *Auger* turning, the end of the *Tree* may be applied to it; still remembring to draw it back at every progresse of three or four *inches* which the *Auger* makes for the clensing it from the *Chips*, least the *Auger* break: Continue this work till the *Tree*, or *piece* of *Timber* be *bored* as far as you think convenient, and when you desire to inlarge the *hole, change your Auger Bits* as the *Figure* represents them.

To



To these we might add severall more, as they are described by *Besson*, *Ramelli*, *Cause*, and others; as likewise *Cranes* and *Machines* for the easier *Elevation*, *Moving*, and *Transporting* of *Timber*, but they are now become familiar, and therefore I omit them.

CHAP. XXXI.

Of Timber *the* Seasoning *and* Uses, *and of* Fuel.

Seasoning.

SInce it is certain and *Demonstrable* that all *Arts* and *Artisans* whatsoever, must *faile* and *cease*, if there were no *Timber* and *Wood* in a *Nation* (for he that shall take his *Pen*, and begin to set down what *Art*, *Mysterie*, or *Trade* belonging any way to *human life*, could be maintain'd and exercis'd without *Wood*, will quickly find that I speak no *Paradox*) I say, when this shall be well *consider'd*, it will appear, that we had better be without *Gold*, than without *Timber*: This contemplation, and the universal *use* of that precious *Material* (which yet is not of universal *use* 'till it be duly prepar'd) has mov'd me to design a solemn *Chapter* for the *seasoning*, as well as to mention some farther particular *Applications* of it. We have before spoken concerning some preparations of *standing Trees* design'd for *Timber*, by a half-cutting, disbarking, and the seasons of *drawing*, and *using* it.

2. Lay up your *Timber* very dry, in an airy place (yet out of the *Wind* or *Sun*) and not standing upright, but lying along one piece upon another, interposing some short *blocks* between them, to preserve them from a certain *mouldinesse* which they usually contract while they *sweat*, and which frequently produces a kind of *fungus*, especially if there be any *sappy* parts remaining.

3. Some there are yet, who keep their *Timber* as moist as they can, by *submerging* it in *Water*, where they let it imbibe to hinder the *cleaving*; and this is good in *Fir*, both for the better *stripping* and *seasoning*; yea, and not onely in *Fir*, but other *Timber*: lay therefore your *Boards* a *Fortnight* in the *Water*, and then setting them upright in the *Sun* and *Wind*, so as it may freely passe through them, (especially during the heats of *Summer*, which is the time of finishing *Buildings*) turn them daily; and thus treated, even newly sawn *Boards*, will *Floor* far better than a many years dry *Seasoning*, as they call it. But to prevent all possible *accidents*, when you lay your *Floors*, let the *joynts* be *shot*, fitted, and tack'd down only for the *first year*, nailing them for good and all the *next*; and by this means they will lye *Stanch*, close, and without *Shrinking* in the least, as if it were all of one piece. Amongst *Wheele-Wrights* the

the Water-*seasoning* is of especial regard, and in such esteem amongst some, that I am assur'd the *Venetians* for their Provision in the *Arsenal*, lay their *Oak* some years in it, before they employ it.

Elm fell'd never so *green* for suddain *use*, if plung'd *four* or *five* dayes in *water* (especially *Salt*, which is best) obtains an admirable *seasoning*, and may immediately be us'd. Some again commend *buryings* in the *Earth*; others in *wheat*; and there be seasonings of the *fire*, as for the scorching and hardning of *Piles* which are to stand either in the *water*, or the *earth*;

——The Oke *Et suspensa focis exploret robora fumus.*
Explore, suspended in the Chimney smoke.

Georg. II.

For that to most *Timber* it contributes much to its duration. Thus do all the *Elements* contribute to the Art of *Seasoning*. The Learned *Interpreter* of *Antonio Neris* Art of *Glasse c.*5. speaking of the Difference of *Vegetables*, as they are made use of at various *seasons*, observes from the *Button-mould-makers* in those *woods* they use, that *Pear-trees* cut in *Summer* work tougheſt, but *Holly* in the *VVinter*, *Box* hardest about *Easter*, but mellow in *Summer*, *Hawthorn* kindly about *October*, and *Service tree* in the *Summer*.

4. And yet even the greeneſt *Timber* is sometimes desirable for such as *Carve* and *Turn*; but it choaks the teeth of our *Saws*; and for *Doors*, *VVindows*, *Floors*, and other close Works, it is altogether to be rejected; especially, where *VVallnut-tree* is the *material*, which will be sure to shrink: Therefore it is best to choose such as is of *two*, or *three* years *seasoning*, and that is neither moist nor over-dry; the *mean* is best. Sir *Hugh Plat* informs us that the *Venetians* use to burn, and scorch their *timber* in a flaming *fire*, continually turning it round with an *Engine*, till they have gotten upon it an hard, black, *coaly* crust; and the Secret carries with it great probability; for that the Wood is brought by it to such a hardneſse and dryneſse, *ut cùm omnis putrifactio incipiat ab humido*, nor *Earth*, nor *VVater* can penetrate it; I my self remembring to have seen *Charcoals* dug out of the ground amongst the ruines of antient Buildings, which have in all probability lain cover'd with earth above 1500 years.

5. *Timber* which is *cleft*, is nothing so obnoxious to *rift* and cleave as what is *hewen*; nor that which is *squar'd*, as what is *round*; and therefore where use is to be made of huge and massie *Columns*, let them be *boared* through from end to end; it is an excellent preservative from splitting, and not *un-philosophical*; though to cure this accident, the rubbing them over with a *wax-cloth* is good, Painters *Putty*, *&c.* or before it be *converted*, the smearing the *timber* over with *Cow-dung*, which prevents the effects both of *Sun* and *Air* upon it; if of necessity it must lye expos'd: But besides the former remedies, I find *this*, for the closing of the chops and clefts of *Green-timber*, to anoint and supple it with the *fat* of *powder'd beef-broth*, with which it must be well

well soak'd, the *chasm's* fill'd with *spunges* dipt into it; *this*, to be twice done over: Some *Carpenters* make use of *grease* and *saw-dust* mingled; but the first is so good a way (sayes my *Authour*) that I have seen *Wind-shock-timber* so exquisitely closed, as not to be discerned where the defects were: This must be us'd when the *timber* is green.

6. We spake before of *Squaring*, and I would now recommend the *Quartering* of such *trees* as will allow useful and competent *Scantlings*, to be of much more durableness, and effect for strength, than where (as custome is, and for want of observation) whole *Beams* and *Timbers* are apply'd in *Ships* or *Houses*, with slab and all about them, upon false suppositions of strength beyond these *Quarters*: For there is in all *trees* an evident *Interstice* or separation between the *heart* and the rest of the *body*, which renders it much more obnoxious to decay and miscarry, than when they are treated, and *converted* as I have describ'd it; and it would likewise save a world of *Materials* in the *Building* of great *Ships*, where so much excellent *timber* is hew'd away to spoyl, were it more in practise. Finally,

7. I must not omit to take notice of the *coating* of *timber* in *Work*, us'd by the *Hollanders* for the preservation of their *Gates*, *Port-cullis's*, *Draw-bridges*, *Sluces*, and other huge *beams* and *Contignations* of *timber* expos'd to the *Sun*, and perpetual injuries of the *Weather*, by a certain mixture of *Pitch* and *Tar*, upon which they strew small pieces of *Cockle* and other *shells*, beaten almost to *powder*, and mingled with *Sea-sand*, or the *Scales* of *Iron*, beaten small and siefted, which *incrusts*, and arms it after an incredible manner against all these assaults and foreign invaders: But if this should be deem'd more obnoxious to *Fireing*, I have heard that a *Wash* made of *Alume*, has wonderfully protected it against the assaults even of that devouring *Element*, and that so a *wooden Tower* or *Fort* at the *Piræum* an *Athenian Port*, was defended by *Archelaus* a Commander of *Mithridates*, from the great *Sylla*.

8. *Timbers* that you have occasion to lay in *Morter*, or which is in any part contiguous to *Lime*, as *Doors*, *Window-Cases*, *Ground-sils*, and the extremities of *Beams*, *&c.* should be cap'd with molten *Pitch*, which will be a marvellous preserver of it from the burning, and destructive effects of the *Lime*; and in defect of *Pitch*, *Loam*, or *Clay* will prove a tollerable defence.

9. For all uses, *that* Timber is esteem'd the best, which is the most *ponderous*, and which lying long, makes deepest *impression* in the *Earth*, or in the *Water* being *floated*; also what is without *knots*, yet firm, and free from *sap*; which is that fatty, *whiter*, and *softer* part, call'd by the Antients *Alburnum*, which you are diligently to hew away; *here* we have much adoe about the *Forulus* of the *Fir*, and the φλοιώδης κύκλος by both *Vitruvius* and *Theophrastus*, which I passe over. You shall perceive some which has a *spiral* convolution of the *veins*: but it is a vice proceeding from the severity of unseasonable *Winters*, and defect of good nutriment.

10. My

10. My Lord *Bacon Exp.* 658. recommends for *tryal* of a *sound* or *knotty* piece of *Timber*, to cause one to speak at *one* of the *Extreams* to his Companion listning at the *other*; for if it be *knotty*, the *sound* sayes he, will come abrupt.

11. Moreover, it is expedient that you know which is the *Grain*, and which are the *Veins* in *Timber* (whence the term *fluviari arborem*) because of the difficulty of working against it: Those therefore be the *veins* which grow largest, and are softer for the benefit of *Cleaving*, and *Hewing*; *that* the *Grain* or *Pectines* which runs in waves, and makes the divers and beautiful *chamfers* which some *woods* abound in to admiration. The *Grain* of *Beech* runs two contrary wayes, and is therefore to be wrought accordingly.

12. *Here* it may be fitly enquir'd, whether of all the sorts we have enumerated, the *old*, or the *younger* Trees do yield the fairest *Colour*, pleasant *Grain* and *Glosse* for *Wainscot*, *Cabinets*, *Boxes*, *Gun-stocks*, *&c.* and what kind of *Pear* and *Plum-tree* give the deepest *Red*, and approaches neerest in beauty to *Brasil*: 'Tis affirm'd the *Old-Oake*, *Old-Walnut*, and *young-Ash*, are best for most *uses*; *black*, and *thorny Plum-tree* is of the deepest *Oriency*; but whether these belong to the *Forest*, I am not yet satisfied, and therefore have assigned them no *Chapter* apart.

13. I would also add something concerning what *VVoods* are observed to be most *sonorous* for *Musical Instruments*: We as yet detect few but the *German Fir*, which is a *species* of *Maple*, for the *Rimms* of *Viols*, and the choicest and finest grain'd *Fir* for the *Bellyes*: The *finger-boards*, *Back*, and *Ribbs*, I have seen of *Eugh*, *Pear-tree*, *&c.* But *Pipes*, *Recorders*, and *wind-Instruments*, are made both of hard, and soft *woods*; I had lately an *Organ* with a set of *Oaken-pipes*, which were the most *sweet* and *mellow* that were ever heard; It was a very old *Instrument*, and formerly, I think, belonging to the Duke of *Norfolk*.

14. For the *place* of growth, that *Timber* is esteem'd best which grows most in the *Sun*, and on a dry and hale ground; for those *trees* which *suck*, and *drink* little, are most hard, robust, and longest liv'd, instances of *Sobriety*; The *Climate* contributes much to its *quality*, and the *Northern* situation is preferred to the rest of the *quarters*; so as that which grew in *Tuscany* was of old thought better than that of the *Venetian* side; and *trees* of the *wilder kind*, and *barren*, than the over much cultivated, and great bearers: but of this already.

15. To omit nothing, *Authours* have sum'd up the *natures* of *timber*; as the hardest *Ebeny*, *Box*, *Larch*, *Lotus*, *Terebinth*, *Cornus*, *Eugh*, *&c.* which are best to receive *politure*; and for this, *Lin-seed*, or the sweeter *Nut-oyl* does the effect best: *Pliny* gives us the *Receipt*, with a decoction of *VValnut-shales*, and certain *wild pears*: Next to these, *Oak* for *Ships*, and *Houses* (or more minutely) the *Oak* for the *Keel*, the *Robur* for the *Prow*, *VValnut* the *Stern*, *Elm* the *Pump*; *Furnerus l.* 1. *c.* 22. conceives the *Ark* to have been built of several woods; *Cornel*, *Holly*, *&c.* for *Pins*, *Wedges*, *&c.* *Chesnut*, *Horn-*

beam, *Poplar*, *&c.* Then for *Bucklers*, and *Targets*, were commended the more soft and moist; because apt to close, swell, and make up their wounds again; such as *Willow*, *Lime*, *Birch*, *Alder*, *Elder*, *Ash*, *Poplar*, *&c.*

The *Robur*, or *Wild-Oak* Timber, best to stand in ground; the *Quercus* without: The *Cypresse*, *Fir*, *Pines*, *Cedar*, *&c.* for *Posts*, and *Columns*, because of their *erect* growth, natural and comely *diminutions*. Then again it is noted, that *Oriental Trees* are hardest towards the *Cortex* or Bark; our *Western* towards the *middle*, which we call the *Heart*; and that Trees which bear *fruit*, or but little, are more *durable* than the more pregnant. It is *noted*, of *Oak*, that the *knots* of an inveterate *Tree*, just where a lusty *arme* joyns to the *Stem*, is as curiously *vein'd* as the *Wall-nut*, which omitted in the *Chapter* of the *Oake*, I here observe.

Pines, *Pitch*, *Alder*, and *Elm*, are excellent to make *Pumps* and *Conduit-pipes*, and for all *Water-works*, &c. *Fir* for *Beams*, *Bolts*, *Burs*; being tough, and not so apt to break as the hardest *Oak*: In sum, the more *odoriferous* Trees are the more durable and lasting.

16. Here farther for the *uses* of *timber*, I will observe to our *Reader* some other *Particulars* for direction both of the *Seller* and *Buyer*, applicable to the several *Species*: And first of the two sorts of *Lathes* allow'd by Statute, *one* of *five*, the *other* of *four foot* long, because of the different Intervals of *Rafters*: That of *five* has 100 to the *Bundle*, those of *four* 120; and to be in *breadth* 1 *Inch* and $\frac{1}{2}$, and half Inch thick; of either of which sorts there are *three*, *viz.* *Heart-oak*, *Sap-Lathes*, and *Deal Lathes*, which also differ in *Price*: The *Heart-oak* are fittest to lye under *tyling*, the *second* sort, for *plastring* of *side-walls*, and the *third* for *Ceilings*, because they are streight and even.

17. Here we will gratifie our curious *Reader* with as curious an *Account* of the Comparative *strength* and *fortitude* of the several usual sorts of *timber*, as upon Suggestions previous to this *Work*, it was several times Experimented by the *Royal Society*, though omitted in the first *Impression*, because the *tryals* were not complete as they now thus stand in our *Register*.

March 23. 1663.

The *Experiment* of breaking several sorts of *Wood* was begun to be made: And there were taken three pieces of several kinds; of *Fir*, *Oak*, and *Ash*, each an *Inch* thick, and two *foot* long, the *Fir* weighed 8 $\frac{1}{16}$ *Ounces*, and was broken with 200 *l.* weight: The *Oak* weigh'd 12 $\frac{1}{4}$ $\frac{3}{5}$, broken with 250 weight: the *Ash* weigh'd 10$\frac{1}{4}$ $\frac{3}{5}$, broken with 325 *weight*.

Besides there were taken 3 pieces of the same sorts of *wood* each of $\frac{1}{2}$ *inch* thick, and 1 *foot* long: the *Fir* weigh'd $\frac{3}{5}$, and was broken with $\frac{1}{8}$ of an 100: The *Oak* weigh'd 1$\frac{1}{8}$ $\frac{3}{5}$ broken with $\frac{1}{4}$ of an 100: the *Ash* weigh'd 1$\frac{1}{8}$ $\frac{3}{5}$ broken with 100 *l.*

Again,

Again, there was a piece of *Fir* $\frac{1}{2}$ *Inch* square, and two *foot* long, broken with 33 *l.* A piece of $\frac{1}{2}$ *Inch* thick 1 *Inch* broad, and 7 *foots* long, broken with 100 weight *edge-wise*; And a piece of $\frac{1}{2}$ *inch* thick, $1\frac{1}{2}$ broad, 2 *foot* long, broken with 125 *weight*, also *edge-wise*.

The *Experiment* was order'd to be repeated by the *President*, to Sr. *William Petty*, and Mr. *Hook*; and it was suggested by some of the *Company*, that in these *tryals* consideration might be had of the *age*, *knottinesse*, *solidity*, several *Soyls*, and *parts* of *trees*, &c. and Sr. *Robert Morray* did particularly *add*, that it might be observ'd how far any kind of Wood *bends* before it *breaks*.

March — 64.

The *Operator* gave an *Accompt* of more pieces of *wood* broken by *weight*, *viz.* a piece of *Fir* 4 *foot* long 2 *Inches*, 53 *Ounce weight*, broken with 800 *l. weight*, and very little bending with 750; by which the *Hypothesis* seems to be confirm'd, that in *similar* pieces, the *Proportion* of the *breaking-weight* is according to the *basis* of the *wood-broken*: Secondly, of a piece of *Fir* 2 *foot* long, 1 *Inch* square, cut away from the middle both wayes to half an *Inch*, which supported 250 *l. weight* before it broke, which is more by 50 *l.* than a piece of the same *thickness* every way was formerly *broken* with; the difference was guessed to proceed from the more firmness of this other piece.

His *Lordship* was desired to contribute to the Prosecution of this *Experiment*, and particularly, to consider what *line* a *Beam* must be *cut* in, and how *thick* it ought to be at the *Extream*, to be equally strong: Which was brought in *April* 13, but I find it not *enter'd*.

April 20. 1664.

The *Experiment* of breaking *Wood* was prosecuted, and there were taken *two* pieces of *Fir*, each *two foot* long, and 1 *Inch square*, which were broken, the one *long-wayes* with 300 *l. weight*, the *other transverse-wayes* with $2\frac{1}{2}$ *hundred*: Secondly, *two* pieces of the same *wood*, each of $\frac{1}{4}$ of an *Inch square*, and *two foot* long, broken, the one *long wayes* with $1\frac{1}{4}$ *hundred*; the other *transverse* with 100 *l. weight*: Thirdly, one piece of 2 *foot* long $\frac{1}{2}$ *Inch* square, broken *longwayes* with 81 *l.* Fourthly, one piece cut out of a crooked *Oken-billet*, with an arching *Grain*, about $\frac{1}{4}$ *Inch* square, *two foot* long, broken with $\frac{1}{4}$ *hundred*.

June 29. 1664.

There were made several *Experiments* more of breaking *wood*: First, a piece of *Fir* $\frac{1}{4}$ *Inch diameter*, and 3 *Inches* long, at which distance the *weight* hung, broke in the *Plane* of the *Grain horizontally*, with $66\frac{1}{4}$ *l.* whereof 15 *l. Troy*; *Vertically*, with 2 *l.* more. Also *Fir* of a $\frac{1}{4}$ *Inch diameter*, and $1\frac{1}{2}$ *Inch* long, broke *vertically* with 20 *l.*

and *horizontally*, with 19 *l. Elm* of ½ *Inch diameter*, and three *inches long*, broke *horizontally*, with 47 *l. Vertically* with 23 *l. Elm* of ¼ *inch diameter*, and 1½ *Inch long*, broke *horizontally* with 12 *l. Vertically* with 10 *l.* which is *Note-worthy.*

July 6. 1664.

The *Experiment* of breaking *Woods* prosecuted: A piece of *Oak* of ½ *Inch diameter* and three *Inches long*, at which distance the *weight* hung, broke *horizontally* with 48 *l. Vertically* with 40 *l. Ash* of ½ *Inch diameter*, and 3 *Inch long*, *horizontally* with 77 *l. Vertically*, with 75 *l. Ash* of ½ *Inch diameter*, and 1½ *Inch long*, *horizontally* with 19 *l. Vertically*, with 12 *l. &c.* Thus far the *Register.*

18. Here might come in the *Problemes* of *Cardinal Cusa* in *Lib.* 4. *Idiotæ dial.* 4^to^ concerning the different *velocity* of the *Ascent* of *great* pieces of *Timber*, before the *smaller*, submerged in *water*; as also of the *weight*; as *v. g.* Why a piece of *Wood* 100 *l.* weight; poising more in the *Air* than 2 *l.* of *Lead*, the 2 *l.* of *Lead* should seem to *weigh* (he should say *Sink*) more in the *Water*? Why *Fruits* being *cut* off from the *Tree*, weigh *heavier*, than when they were *growing*? with several the like *Paradoxes*, haply more *curious* than *useful*, and therefore we purposely omit them.

19. Concerning *Squar'd*, and *Principal Timber* for any usual *Building*, these are the legal *Proportions*, and which *Builders* ought not to vary from.

Summers or Girders from	F. F. 14 16 18 to 20 20 23 23 26 26 28	In *length*, must be in their *Square.*	In. In. 11 8 13 & 9 14 10 16 12 17 14	*Joysts of*	Feet 11½ 10½	In *length* must be in their *Square.*	Inch Inch 8 —— 3 7 & 3 6 —— 3
Binding Joysts & *Trimming* from	F. F. 7 to 11½	In *length* must be in their *Square*	6 5 7 & 5 8 5	*Wall-plates* and *Beams* of any *length*, from 15 *foot*, may have in their *square*——			Inch Inch 7 5 10 & 6 8 6
Purlynes from	F. F. 15 to 18 ½ 18½ 21 ½	In *length*, must have in their *Square*	9 —— 8 & 12 —— 9				
Principal Rafters cut *Taper* from	F. F. 12½—14½ 14½ — 18½ 18½ to 21½ 21½ — 24½ 24½ — 26½	In *length* must have in their *Square* on *one side*	In. In. 8 5 9 7 10 to 8 12 9 9 9	on the *other side*	6 7 8 8 9	single *Rafters* in *length* from 6½ to 9½	F. 6½ 0 9½	must have in their *Squ.*	5-3½ & 5---4
Principal Dischargers of any *length* from	Foot 10 upward	must have in their *Square*	Inch Inch 2 —— 12 16 —— 13				

But *Carpenters* also work by *Square*, which is 10 *foot* in *Framing* and

and Erecting the *Carcase* (as they call it) of any *Timber* Edifice, which is valued according to the goodnesse and choyce of the *Materials*, and curiosity in *Framing*; especially *Roofs* and *Stayre-cases*, which are of most charges. And *here* might also something be added concerning the manner of *framing* the *Carcases* of *Buildings*, as of *Floors*, *pitch* of *Roofs*, the length of *Hips*, and *Sleepers*, together with the *names* of all those several *Timbers* used in *Fabrics* totally consisting of *Wood*; but I find it done to my hand, and Publish'd some *years* since, at the *end* of a late Translation of the *first Book* of *Palladio*, to which I refer the *Reader*. And to accomplish our *Artists* in *Timber*, with the utmost which that *material* is capable of; to the Study and Contemplation of that stupendious *Roof*, which now lies over the ever renowned *Sheldonean Theater* at the *University* of *Oxford*; being the sole Work and Contrivement of that my most Honoured Friend Dr. *Chr. Wren*, now worthily dignified with the *Superintendency* of his *Majesties Buildings*.

20. We did, in *Chap.* 21. mention certain *Subterranean Trees*, which Mr. *Cambden* supposes grew altogether under the ground: And truly, it did appear a very *Paradox* to me, till I both saw, and diligently examin'd that piece (*Plank*, *Stone*, or both shall I name it) of *Lignum fossile* taken out of a certain *Quarry* thereof at *Aqua Sparta* not far from *Rome*, and sent to the most incomparably learned Sir *George Ent*, by that obliging *Virtuoso Cavalier dal Pozzo*. He that shall examine the *hardnesse*, and feel the *ponderousnesse* of it, sinking in *water*, *&c.* will easily take it for a *stone*; but he that shall behold its *grain*, so exquisitely *undulated*, and varied together with its *colour*, manner of *hewing*, *chips*, and other most perfect resemblances, will never scruple to pronounce it arrant *wood*.

Signor Stelluti (an *Italian*) has publish'd a whole *Treatise* expressly to describe this great *Curiosity*: And there has been brought to our *notice*, a certain *relation* of an *Elm* growing in *Berk-shire* neer *Farringdon*, which being *cut* towards the *Root*, was there plainly *Petrified*; the like, as I once my self remember to have seen in another *Tree*, which grew quite through a *Rock* near the *Sepulchre* of *Agrippina* (the *Mother* of that Monster *Nero*) at the *Baia* by *Naples*, which appear'd to be all *Stone*, and trickling down in *drops* of *Water*, if I forget not. But, whiles others have *Philosophiz'd* according to their manner upon these extraordinary *Concretions*; see what the most industrious, and knowing Mr. *Hook*, *Curator* of this *Royal Society*, has with no lesse *Reason*, but more succinctnesse, observ'd from a late *Microscopical* Examen of another piece of *petrified wood*; the Description, and Ingenuity whereof cannot but gratifie the *Curious*, who will by this *Instance*, not onely be instructed how to make *Inquiries* upon the like *occasions*; but see also with what *accurateneſſe* the *Society* constantly proceeds in all their *Indagations*, and *Experiments*; and with what *Candor* they relate, and communicate them.

21. "It resembl'd *wood*, in that

"First,

"First, all the parts of the *petrifi'd* substance seem'd not at all "dislocated, or alter'd from their natural position whiles they were "*wood*; but the whole piece retain'd the exact shape of *wood*, hav- "ing many of the conspicuous *pores* of *wood* still remaining *pores*, "and shewing a manifest difference visible enough between the "*grain* of the *wood* and that of the *bark*; especially, when any side "of it was cut smooth and polite; for then it appeared to have a "very lovely *grain*, like that of some curious close *wood*.

"Next (it resembled *wood*) in that all the smaller and (if so I "may call those which are onely to be seen by a good glasse) *mi-* "*croscopical* pores of it, appear (both when the substance is cut and "polish'd *transversly*, and *parallel* to the pores) perfectly like the "*Microscopical* pores of several kinds of *wood*, retaining both the "shape, and position of such pores.

"It was differing from *wood*.

"First, in *weight*, being to common *water*, as $3\frac{1}{4}$ to 1. whereas "there are few of our *English* woods that, when dry, are found to "be full as heavy as *water*.

"Secondly, in *hardnesse*, being very near as hard as a *flint*, and "in some places of it also resembling the grain of a *flint*: it would "very readily cut *Glass*, and would not without difficulty (espe- "cially in some parts of it) be scratch'd by a black hard *flint*: "it would also as readily strike *fire* against a *Steel*, as also against "a *flint*.

"Thirdly, in the *closeness* of it; for, though all the *microscopical* "*pores* of the *wood* were very conspicuous in one position, yet by "altering that position of the polish'd surface to the light, it also "was manifest that those *pores* appear'd darker than the rest of the "body, onely because they were fill'd up with a more dusky sub- "stance, and not because they were hollow.

"Fourthly, in that it would not *burn* in the *fire*; nay, though I "kept it a good while red-hot in the flame of a *Lamp*, very in- "tensly cast on it by a *blast* through a small *pipe*; yet it seemed not "at all to have diminish'd its extension; but onely I found it to "have chang'd its colour, and to have put on a more dark, and "dusky brown *hue*. Nor could I perceive that those parts which "seem'd to have been *wood* at first, were any thing wasted, but the "parts appear'd as solid, and close as before. It was farther ob- "servable also, that as it did not consume like *wood*; so neither "did it crack and fly like a *flint*, or such like hard *stone*; nor was "it long before it appeared *red-hot*.

"Fifthly, in its *dissolubleness*; for putting some drops of *distilled* "*Vinegar* upon the *stone*, I found it presently to yield very many "*bubbles*, just like those which may be observed in *spirit* of *Vine-* "*gar* when it corrodes *Coral*; though I guess many of those *bub-* "*bles* proceeded from the small parcels of *Air*, which were driven "out of the pores of this *petrifi'd* substance, by the insinuating li- "quid *menstruum*.

"Sixtly, in its *Rigidness*, and *friability*; being not at all *flexi-*

ble,

" *ble*, but *brittle* like a *flint*; insomuch that with one knock of a " *Hammer* I broke off a small piece of it, and with the same *Ham-* " *mer* quickly beat it to pretty fine *powder* upon an *Anvil*.

" Seventhly, it seem'd also very differing from *wood* to the *touch*, " feeling more cold then *wood* usually does, and much like other " close *Stones* and *Minerals*.

" The *Reasons* of all which *Phænomena* seem to be.

" That this *petrifi'd wood* having lain in some place where it was " well soaked with *petrifying water* (that is, such a *water* as is well " impregnated with *stony* and *earthy* particles) did by degrees se- " parate, by *straining* and *filtration*, or perhaps by *præcipitation*, " *co-hæsion* or *coagulation*, abundance of *stony particles* from that " permeating water, which *stony particles* having, by means of the " fluid *Vehicle*, convey'd themselves not onely into the *microscopi-* " *cal pores*, and perfectly stop'd up them; but also into the *pores*, " which may perhaps be even in that part of the *wood* which " through the *microscope* appears most solid; do thereby so aug- " ment the weight of the *wood*, as to make it above three times " heavier than *water*, and perhaps six times as heavy as it was when " *wood*: next, they hereby so lock up and fetter the parts, of the " *wood*, that the *fire* cannot easily make them fly away, but the acti- " on of the *fire* upon them is onely able to *char* those parts, as it " were, like as a piece of *wood* if it be closed very fast up in *Clay*, " and kept a good while *red hot* in the *fire*, will by the heat of the " *fire* be *char'd*, and not consum'd; which may perhaps be the rea- " son why the *petrifi'd substance* appear'd of a blackish brown col- " our after it had been burnt. By this intrusion of the *petrifi'd* " *particles* it also becomes *hard*, and *friable*; for the smaller *pores* " of the *wood* being perfectly stuffed up with these *stony particles*, " the *particles* of the *wood* have few, or no *pores* in which they can " reside, and consequently, no *flexion* or yielding can be caus'd in " such a *substance*. The remaining *particles* likewise of the *wood* " among the *stony particles* may keep them from cracking and fly- " ing, as they do in a *flint*.

22. The casual finding of *Subterraneous-Trees* has been the oc- casion of this curious *Digression*: Now it were a strange *Paradox* to affirm, that the *Timber under* the *ground*, should to a great degree, equal the *value* of that which grows *above* the *Ground*; seeing though it be far *lesse*, yet it is far *Richer*; the *Roots* of the vilest *Shrub*, being better for its *toughnesse*, and for *Ornaments*, and deli- cate *uses* much more preferrable than the *Heart* of the fairest and soundest *Tree*: And many *Hills*, and other *waste-places*, that have in late and former *Ages* been stately *Groves* and *Woods*, have yet this *Treasure* remaining, and perchance *sound* and unperish'd, and commonly (as we observ'd) an *hinderance* to other *Plantations*; *Engines* therefore, and *Expedients* for the more easily *extracting* these *Cumbrances*, and making riddance upon such Occasions, be- sides those we have produc'd, would be *excogitated*, and enquir'd after, for the dispatch of this *difficult* Work.

23. Finally,

Fuel. 23. Finally, for the use of our *Chimneys*, and maintenance of *fire*, the plenty of *wood* for *fuel*, rather than the *quality* is to be looked after; and yet there are some greatly to be preferr'd before others, as *harder*, *longer-lasting*, better *heating*, and chearfully *burning*; for which we have commended the *Ash*, *&c.* in the foregoing *Paragraphs*, and to which I pretend not here to add much; for the avoiding repetitions; though even an *History* of the best way of *Charing* would not mis-become this *Discourse*.

But something more is to be said sure, concerning the *felling* of *Fuel-wood*: *Note* therefore, that you first begin with the *under-wood*: Some conceive between *Martle-mas* and *Holy-Rood*; but, generally with *Oaks* as soon as 'twill strip, but not after *May*; and for *Ashes*, 'twixt *Michael-mas* and *Candle-mas*; and so fell'd, as that the *Cattel* may have the *browsing* of it, for in *Winter* they will not onely eat the tender *twiggs*, but even the very *Mosse*; but fell no more in a day than they can Eat for this purpose: This done, *kid* or *bavin* them, and pitch them upon their ends to preserve them from rotting: Thus the *Under-wood* being dispos'd of, the rest will prosper the better, and besides it otherwise does but rot upon the Earth, and destroy that which would spring. If you *head* or *top* for the *fire*, 'tis not amiss to begin three or four foot above the *Timber*, if it be considerable; but in case they are onely *shaken-Trees* and *Hedge-rows*, strip them even to thirty foot high, because they are usually full of *boughs*; and 'twere good to top such as you perceive to wither at the *tops* a competent way beneath, to prevent their sickness downwards, which will else certainly ensue; whereas by this means even *dying Trees* may be preserved many years to good emolument, though they never advance *taller*; and being thus frequently shred, they will produce more, than if suffered to stand and decay: This is a profitable *note* for such as have old, doating, or any wayes infirm *Woods*: In other *Fellings*, some advise never to commence the disbranching from the *top*, for though the incumbency of the very *boughs* upon the *next*, cause them to fall off the easier, yet it endangers the splicing of the next, which is very prejudicial, and therefore advise the beginng at the neareſt. And in *Cutting* for *fuel* you may as at the *top*, so at the *sides*, cut a *foot*, or more from the *Body*; but never when you shred *Timber-Trees*: We have said how dangerous it is, to cut for *wood* when the *Sap* is up, it is a mark of improvident *Husbands*; besides it will never burn well, though abundance be congested: Lastly, remember that *East* and *North-winds* are unkind to the succeeding Shoots. Now for directions in *Stacking* (of which we have said something in *Chap.* of *Copses*) ever set the *lowest* course an *end*, the *second* that on the sides and ends, *viz.* sides and ends outward; the *third* thwart the other on the side, and so the rest, till all are placd, spending the up-most first.

Thus we have endeavoured to prescribe the best directions we could learn concerning this necessary Subject. And in this penury of that dear Commodity, and to incite all ingenious persons, studious

studious of the benefit of their *Countrey*, to think of wayes how our *Woods* may be preserved, by all manner of *Arts* which may prolong the lasting of our *fuel*, I would give the best encouragements. Those that shall seriously consider the intollerable misery of the poor *Cauchi* (the then Inhabitants of the *Low Countries*) describ'd by *Pliny*, *lib.* 16. *cap.* 1. (how opulent soever their late *Industry* has render'd them) for want only of *wood* for *fuel*, will have reason to deplore the excessive decay of our former store of that useful Commodity; and by what shifts our Neighbours the *Hollanders*, do yet repair that defect, be invited to exercise their ingenuity: For besides the *Dung* of *Beasts*, and the *Peat* and *Turf* for their *Chimneys*, *Cow shearder*, *&c.* they make use of *Stoves* both portable and standing; and truly the more frequent use of those *Inventions* in our great, wasting *Cities* (as the Custom is through all *Germany*) as also of those new, and excellent *Ovens* invented by Dr. *Kessler*, for the incomparably baking of *Bread*, *&c.* would be an extraordinary expedient of husbanding our *fuel*; as well as the right mingling, and making up of *Char-coal-dust*, and *loam*, as 'tis hinted to us by Sir *Hugh Plat*: and is generally us'd in *Mastricht*, and the Countrey about it; than which there is not a more sweet, lasting, and beautiful *fuel*; The manner of it is thus:

24. Take about one *third part* of the smallest of any *Coal*, *Pit*, *Sea*, or *Char-coal*, and commix them very well with *loam* (whereof there is in some places to be found a sort somewhat more combustible) make these up into *balls* (moistned with a little *Urine* of *Man* or *Beast*) as big as an ordinary *Goose-egge*, or somewhat bigger; or if you will in any other form, like *brick-bats*, *&c.* expose these in the *Air* till they are throughly dry; they will be built into the most orderly *fires* you can imagine, *burn* very clear, give a wonderfull heat, and continue a very long time. But first you must make the *fire* of *Char-coal*, or *Small-coal*, covering them with your *Eggs* or *Hovilles* (as they are call'd) and building them up in *Pyramis*, or what shape you please; they will continue a glowing, solemn and constant *fire* for seven or eight *hours* without being stirred, and then they encourage and recruite the innermost with a few fresh *Eggs*, and turn the rest, which are yet quite reduc'd to *Cinders*.

Two or three short *Billets* cover'd with *Char-coal* last much longer, and with more life, than twice the quantity by it self, whether *Char-coal* alone, or *Billet*; and the *Billets* under the *Char-coal* being undisturb'd, will melt as it were into *Char-coals* of such a lasting size.

If *Small-coals* be spread over the *Char coal*, where you burn it alone, 'twill bind it to longer continuance; and yet more, if the *Small coal* be made of the *roots* of *Thorns*, *Briers*, and *Brambles*. Consult *L. Bacon*, *Exp.* 775.

25. The *Quercus Marina*, *Wrack*, or *Sea-weed* which comes in our *Oyster barrels*, laid under *New-Castle-coal* to kindle it (as the use is in some places) will (as I am inform'd) make it out-last

two great *fires* of simple *Coals*, and maintain a glowing *luculent* heat without wast: The manner of *gathering* it is to *cut* it in *Summer* time from the *Rocks* whereon it grows abundantly, and bringing it in *Boats* or otherwise to Land, *spread* and *dry* it in the *Sun* like *hay*, turning and cocking it till it be fully *cured*: It makes an excellent *fire alone*, and *roasts* to admiration; and when all is *burnt*, the *Ashes* are one of the best *manures* for *Land* in the world, for the time it continues its vertue, which should be frequently supplied with fresh; and as to the *Fire* mingled with other *Combustibles*, it is evident that it adds much life, continuance and aid, to our sullen *Sea-coal* Fuel; and if the main *Ocean* should afford *Fuel* (as the *Bernacles* and *Soland-Geese* are said to do in some parts of *Scotland* with the very *sticks* of their *Nests*) we in these *Isles* may thank our selves if we be not warm: These few particulars I have but mention'd to animate *Improvements*, and ingenious Attempts of detecting more cheap, and useful *processes*, for wayes of *Charing Coals*, *Peat*, and the like *fuliginous* materials; as the accomplish'd Mr. *Boyle* has intimated to us in the *Fift* of those his precious *Essays* concerning the *usefulnesse* of *Natural Philosophy*, *Part* 2. *cap.* 7. *&c.* to which I refer the Curious.

26. By the *Preamble* of the *Statute* 7 *Ed.* 6. one may perceive (the *Measures* compar'd) how plentiful *fuel* was in the time of *Ed.* the 4*th*, to what it was in the *Reigns* of his *Successors*: This suggested a review of *Sizes*, and a reformation of *Abuses*; in which it was *Enacted*, that every *Sack* of *Coals* should contain *four Bushels*; Every *Taleshide* to be four *foot* long, besides the *carf*; and if *nam'd* of *one*, *marked* one, to contain 16 inches *circumference*, within a foot of the middle; If of two marks, 23 inches; of 3. 28. of 4. 35; of 5. 38. inches *about*, and so proportionably.

27. *Billets* were to be of three foot, and four inches in length: the single to be 17 inches and an half about; and every *Billet* of one *cast* (as they term the mark) to be ten inches about: of two cast, fourteen inches, and to be marked (unless for the private use of the *Owner*) within six inches of the middle: of one *cast* within four inches of the end *&c.*

Every bound *Fagot* should be *three* foot long; the *band* twenty four inches *circumference*, besides the knot.

In the 43. *Eliz.* the same *Statute* (which before only concern'd *London* and its *Suburbs*) was made more universal; and that of *Ed.* 6. explain'd with this addition: For such *Taleshides* as were of necessity to be made of *cleft-wood*, if of *one* mark, and half round, to be 19 inches about; if quarter-cleft 18 inches ½: Marked *two*, being round it shall be 23 inches compass: half-round 27: quarter-cleft 26: marked *three*, round 28: half-round 33: quarter-cleft 32: marked *four*, being round 33 inches about: half round 39: quarter-cleft 38: marked *five* round, 38 inches about: half-round 44: quarter-cleft 43: the measure to be taken within half a foot of the middle of the length mention'd in the former *Statute*.

Then

Then for the *Billet*, every one nam'd a *single*, being round, to have 7 inches ½ *circumference*; but no *single* to be made of cleft wood: If marked *one*, and round, to contain 11 inches compasse: if half-round 13: quarter-cleft 12½.

If marked *two*, being round, to contain 16 inches: half-round 19: quarter-cleft 18½: the length as in the *Statute* of King *Edward* 6.

28. *Fagots* to be every stick of *three foot* in length, excepting onely one stick of one foot long, to harden and wedge the binding of it: This, to prevent the abuse (too much practis'd) of filling the middle part, and ends with trash, and short sticks, which had been omitted in the former *Statute*: concerning *this* and of the *dimensions* of wood in the *Stack*, see *Chap.* 28. to direct the lesse instructed *Purchaser*: and I have been the more particular upon this occasion; because, than our *Fuel* bought in *Billet* by the *Notch* (as they call it in *London*) there is nothing more deceitful; for by the vile iniquity of some *Wretches*, marking the *billets* as they come to the *Wharf*, Gentlemen are egregiously cheated. I could produce an instance of a *Friend* of mine (and a *Member* of this *Society*) for which the *Wood-monger* has little cause to brag; since he never durst come at him, or challenge his *Money* for the *Commodity* he bought; because he durst not stand to the *measure*.

At *Hall* near *Foy*, there is a *Fagot*, which consists but of *one* piece of *Wood*, naturally grown in that form, with a *band* wrapped about it, and parted at the ends into *four sticks*, one of which is subdivided into *two* others: It was carefully preserved many years by an *Earl* of *Devonshire*, and looked on as portending the *fate* of his *Posterity*, which is since indeed come into the hands of *four Cornish* Gentlemen, one of whose *Estates* is likewise divided 'twixt two *Heirs*. This we have out of *Cambden*, and I here *note*, for the *Extravagancy* of the thing; though as to the verity of such *Portents* from *Trees*, *&c.* I do not find (upon enquiry, which I have diligently made of my Lord *Brereton*) that there is any certainty of the rising of those *Logs* in the *Lake* belonging to that Noble *Person*, so as still to premonish the *Death* of the *Heir* of that *Family*, how confidently soever reported. Sometimes it has happn'd, but the *Tradition* is not constant: To this *Classe* may be referred what is affirmed concerning the fatal *Prediction* of *Oakes* bearing strange *leaves*, which may be enquired of.

29. But I will now describe to you the *Mystery* of *Charing* (whereof something was but touch'd in the *Processe* of extracting *Tar* out of the *Pines*) as I receiv'd it from a most industrious *person*, and so conclude the *Chapter*.

There is made of *Char-coal* usually *three* sorts, *viz. one* for the *Iron-works*, a *second* for *Gun-powder*, and a *third* for *London* and the *Court*, besides *Small-coals*, of which we shall also speak in its due place.

We will begin with that sort which is us'd for the *Iron-works*, because the rest are made much after the same manner, and with very little difference.

The best *Wood* for this is good *Oak*, cut into lengths of *three* foot, as they size it for the *Stack*: This is better than the *Cord-wood*, though of a large measure, and much us'd in *Essex*.

The *Wood* cut, and set in *Stacks* ready for the *Coaling*, chuse out some level place in the *Copse*, the most free from stubs, *&c.* to make the *Hearth* on: In the midst of this *area* drive down a stake for your *Centre*, and with a *pole*, having a *ring* fasten'd to one of the extreams (or else with a *Cord* put over the *Centre*) describe a *Circumference* from twenty, or *more* feet *semidiameter*, according to the quantity of your *Wood* design'd for *Coaling*, which being neer may conveniently be *Chared* in that *Hearth*; and which at one time may be 12, 16, 20, 24, even to 30 *stack*: If 12 therefore be the quantity you will *Coal*, a *Circle* whose *diameter* is 24 foot, will suffice for the *Hearth*; If 20 *stack*, a *diameter* of 32 foot; If 30, 40 foot, and so proportionably.

Having thus marked out the ground, with *Mattocks*, *Haws*, and fit Instruments, *bare* it of the *Turf*, and of all other combustible stuff whatsoever, which you are to rake up towards the *Peripherie*, or out-side of the *Circumference*, for an *use* to be afterwards made of it; plaining, and levelling the ground within the *Circle*: This done, the *Wood* is to be brought from the neerest parts where it is *stack'd*, in *Wheel-barrows*; and first the smallest of it plac'd at the utmost limit, or very margin of the *Hearth*, where it is to be set long-wayes, as it lay in the *stack*; the biggest of the *Wood* pitch, or set up on end round about against the *small-wood*, and all this within the *circle*, till you come within five, or six foot of the *Centre*; at which distance you shall begin to set the *Wood* in a *Triangular* form (as in the following *Print*, *a*) till it come to be three foot high: Against *this* again, place your greater *Wood* almost *perpendicular*, reducing it from the *triangular* to a *circular* form, till being come within a yard of the *Centre*, you may Pile the *Wood* long-wayes, as it lay in the *Stack*, being careful that the ends of the *Wood* do not touch the *Pole*, which must now be erected in the *Centre*, nine foot in height, that so there may remain a round *hole*, which is to be form'd in working up the *Stack wood*, for a *Tunnel* and the more commodious *firing* of the *pit*, as they call it, though not very properly. This provided for, go on to *Pile*, and set your *Wood* upright to the other, as before; till having gain'd a *yard* more, you lay it long-wayes again, as was shew'd: And thus continue the Work, still enterchanging the *position* of the *Wood*, till the whole *Area* of the *Hearth* and *Circle* be fill'd, and pil'd up at the least *eight* foot high, and so drawn *in* by degrees in *Piling*, that it resemble the form of a *copped* brown *Houshold-loaf*, filling all inequalities with the smaller *Trunchions*, till it lye very close, and be perfectly, and evenly shaped. This done, take *straw*, *haume*, or *ferne*, and lay it on the out-side of the bottome of the *heap*, or *wood*, to keep the next *cover* from falling amongst the *sticks*: Upon *this*, put on the *Turf*, and cast on the *dust* and *Rubbish* which was grubb'd, and raked up at the making of the *Hearth*, and

and reserved near the *circle* of it; with *this* cover the whole heap of *Wood* to the very top of the *Pit*, or *Tunnel*, to a reasonable, and competent thickness, beaten close and even, that so the *fire* may not *vent* but in the places where you intend it; and if in preparing the *Hearth*, at first, there did not rise sufficient *Turf* and *Rubbish* for this Work, supply it from some convenient place near to your *heap*: There be who cover this again with a *sandy*, or finer mould, which if it close well, need not be above an *inch* or two thick: This done, provide a *Screene*; by making light *hurdles* with *slit rods*, and *straw* of a compent thickness, to keep *off* the *Wind*, and broad, and high enough to defend an opposite side to the very top of your *Pit*, being eight or nine foot; and so as to be easily remov'd as need shall require for the *luing* of your *pit*.

When now all is in this posture, and the *Wood* well rang'd, and clos'd, as has been directed, set *fire* to your *heap*: But first you must provide you of a *Ladder* to ascend the top of your *Pit*: this they usually make of a curved *Tiller* fit to apply to the *convex* shape of the *Heap*, and cut it full of notches for the more commodious setting their Feet, whiles they govern the *Fire* above; therefore now they pull up, and take away the *Stake* which was erected at the *centre* to guid the building of the *Pile*, and cavity of the *Tunnel*. This done, put in a quantity of *Char-coals* (about a *peck*) and let them fall to the bottom of the *Hearth*; upon them cast in *coals* that are fully kindled; and when those which were first put in are beginning to sink, throw in more *fuel*; and so, from time to time, till the *Coals* have universally taken *fire up* to the top: Then cut an ample and reasonable thick *Turf*, and clap it over the hole, or *mouth* of the *Tunnel*, stopping it as close as may be with some of the former dust and rubbish: Lastly, with the handles of your *Rakers*, or the like, you must make *Vent-holes*, or *Registers* (as our *Chymists* would name them) through the stuff which covers your *Heap* to the very *Wood*, these in ranges of two or three foot distance quite round within a foot (or thereabout) of the *top*, though some begin them at the *bottom*: A day after, begin another row of *holes* a foot and half beneath the former; and so more, till they arrive to the ground, as occasion requires. Note, that as the *Pit* does *coal* and *sink* towards the *centre*, it is continually to be fed with short, and fitting *Wood*, that no part remain *unfir'd*; and if it *chars* faster at one part than at another, *there* close up the *vent-holes*, and open them where need is: A *Pit* will in this manner be burning off, and *charing*, five, or six dayes, and as it *coals*, the *smoke* from thick and gross clouds, will grow more blew, and livid, and the whole mass sink accordingly; so as by these indications you may the better know how to stop, and govern your *spiracles*. Two or three dayes it will onely require for *cooling*, which (the *vents* being stopp'd) they assist, by taking now off the outward covering with a *Rabil* or *Rubber*; but *this*, not for above the space of one *yard* breadth at a time; and first they remove

move the courſeſt, and groſſeſt of it, throwing the finer over the *heap* again, that ſo it may neither *cool* too haſtily, nor endanger the *burning* and reducing all to *Aſhes*, ſhould the whole *Pit* be uncover'd and expos'd to the *Air* at once; therefore they open it thus round by degrees.

When now by all the former *Symptoms* you judge it fully *char-ed*, you may begin to *draw*; that is, to take out the *Coals*, firſt round the bottom, by which means the *Coals*, *Rubbiſh* and *Duſt* ſinking and falling in together may choak, and extinguiſh the *fire*.

Your *Coals* ſufficiently *cool'd*, with a very long-tooth'd *Rake*, and a *Vann*, you may load them into the *Coal Wains*, which are made cloſe with boards, purpoſely to carry them to *Market*: Of theſe *Coals* the groſſer ſort are commonly reſerv'd for the *Forges*, and *Iron-works*; the middling and ſmoother put up in *Sacks*, and carried by the *Colliers* to *London* and the adjacent *Towns*; thoſe which are *char'd* of the *Roots*, if pick'd out, are accounted beſt for *Chymical* fires, and where a laſting, and extraordinary *blaſt* is requir'd.

30. *Coal* for the *Powder Mills* is made of *Alder-wood* (but *Lime-tree* were much better had we it in that plenty as we eaſily might) *cut ſtack'd*, and *ſet* on the *Hearth* like the former: But firſt, ought the *wood* to be wholly *diſbark'd* (which work is to be done about *Mid-ſummer* before) and being throughly dry, it may be *Coaled* in the ſame method, the *Heap* or *Pits* onely ſomewhat ſmaller, by reaſon that they ſeldom *coal* above five, or ſix *ſtacks* at a time, laying it but *two lengths* of the *wood* one above the other, in form ſomewhat flatter on the *top* than what we have deſcribed. Likewiſe do they fling all their *Rubbiſh* and *Duſt* on the *top*; and begin not to cover at the *bottom*, as in the former example. In like ſort, when they have drawn up the *fire* in the *Tunnel*, and ſtopp'd it, they begin to draw down their *duſt* by degrees round the heap; and this *proportionably* as it *fires*, till they come about to the *bottom*; all which is diſpatch'd in the ſpace of *two* dayes. One of theſe Heaps will *char* threeſcore *Sacks* of *Coal*, which may all be carried at one time in a *Waggon*; and ſome make the *Court-coals* after the ſame manner. Laſtly,

31. *Small-coals* are made of the *Spray*, and *Bruſh-wood* which is ſhripped off from the *branches* of *Copſe-wood*, and which is ſometimes bound up into *Bavins* for this uſe; though alſo it be as frequently *chared* without binding, and then they call it *cooming* it together: This, they place in ſome near *floor*, made level, and freed of incumbrances, where ſetting one of the *Bavins* or part of the *ſpray* on *fire*, two men ſtand ready to throw on *Bavin* upon *Bavin* (as faſt as they can take *fire*, which makes a very great and ſudden blaze) till they have burnt all that lyes near the place, to the number (it may be) of five, or ſix hundred *Bavins*: But ere they begin to ſet *fire*, they fill great *Tubs* or *Veſſels* with *water*, which ſtand ready by them, and this they daſh on with a great

great *dish* or *scoup*, so soon as ever they have thrown on all their *Bavins*, continually plying the great *heap* of glowing *Coals*, which gives a sudden stop to the fury of the *Fire*, whiles with a great *Rake* they lay, and spread it abroad, and ply their casting of *Water* still on the *Coals*, which are now perpetually turn'd by two men with great *Shovels*, a third throwing on the *water*: This they continue till no more *Fire* appears, though they cease not from being very hot: After this, they *shovel* them up into great *heaps*, and when they are throughly *cold*, put them up in *Sacks* for *London*, where they use them amongst divers *Artificers*, both to kindle greater *Fires*, and to temper, and *aneal* their several Works.

32. The best *Season* for the fetching home of other *Fuel*, is from *June*; the *Ways* being then most dry, and passable, yet I know some good *Husbands* will begin rather in *May*; because *Fallowing* and stirring of Ground for *Corn*, comes in the ensuing *Monthes*, and the Dayes are long enough, and *Swaines* have then least to do.



b *The* Central Pole *or place of the* Tunnel *with the* Area *making ready.*
a *The* Wood *plac'd about it in Triangle.*
c *The* Coal-Wood *pil'd up before it be covered with Earth.*
d *The* Coal-pit *or* Pile fir'd.

33. And

33. And thus we have seen how for *House-boot*, and *Ship-boot*, *Plow boot*, *Hey-boot*, and *Fire-boot*, the *Planting*, and *Propagation* of *Timber* and *Forest Trees* is requisite; so as it was not for nothing, that the very *Name* (which the *Greeks* generally apply'd to *Timber*) ὕλη, by *Senechdoche*, was taken always *pro Materia*; since we hardly find any thing in *Nature* more universally *useful*; or, in comparison with it, deserving the name of *Material*.

34. Lastly, to *complete* this *Chapter* of the *universal Use* of *Trees*, and the *Parts* of them, something I could be tempted to say concerning *Staves*, *Wands &c.* Their *Antiquity*, *Use*, *Divine*, *Domestick*, *Civil*, and *Political*; the time of *Cutting*, manner of *Seasoning*, *Forming*, and other curious particulars (how *dry* soever the *Subject* may appear) both of *Delight* and *Profit*: but we reserve it for some more fit opportunity, and perhaps, it may merit a peculiar *Treatise*, as acceptable, as it will prove divertisant. In stead of this, we will therefore gratifie our *Reader* with some no inconsiderable *Secrets*: But first we will begin with a few plain *Directions* for such Persons and *Countrey Gentlemen*, as being far distant from, or unhandsomely impos'd upon by common *Painters*, may be desirous to know how to *Stop*, *Prime*, and *Paint* their *Timber-work* at home, and save the Expense of *Work* by any of their *Servants* indu'd with an ordinary Capacity.

Putty to stop the *chaps* and *cracks* of wrought *Timber*, is made of *White* and *Red-lead*, and some *Spanish-white* (not much) temper'd, and bruised with so much *Lin-seed Oyl* as will bring it to the Consistence of a *Past*. Then,

Your first *Priming* shall be of *Oaker* and *Spanish-white*, very thinly ground: The *second* with the same, a little *Whiter*; but it matters not much. The *third* and last, with *White-lead* alone; some mingle a little *Spanish-white* with it, but it is better omitted. If you desire it exquisite, instead of *Lin-seed-Oyl*, use that of *Wall-nuts*: But the ordinary *Stone-colour* for grosse work, expos'd to the Air, may be of lesse Expense, with the more ordinary *Oyl*, to which you may add a little *Char-coal* in the Grinding.

Blew, is made of *Indigo*, with a small addition of *Red-lead*, or *Verdigreese* for a *dryer*; unlesse you will use *drying-Oyl*, which is much preferrable, and is made of *Lin-seed Oyl* boyl'd with a little *Umber* bruised small: I speak nothing here of *Smalt* and *Byce*, which is onely done by *Strewing*.

Green, with *Verdigreece* ground with *Lin-seed Oyl* pretty thick, and then temper'd with *Joyners Vernish* in a glaz'd *Pot* of Earth (the best to preserve your *Colours* in) till it run somewhat thin; and just touch it with your *Brush*, when you lay it on, having *Prim'd* it the *second* time with *White*.

Note, that every *Primer* must be dry, before you go it over again.

If you will *Re-vaile*, as they term it, and shadow, or Vein your *Stone-colour*, there is a *Colour* call'd *Shadowing-Black*; or you may now and then lightly touch it with a little *Red lead*; or work with *Umber*.

It

It will also behove you to have a good smooth *Slat*, and a *Pibble Muller* well polish'd, which may be bought at *London*; as likewise a dozen of large, and lesser *Brushes*, and *Glaz'd Pots*; and to grind the *Colours* perfectly well. The *Spanish-white* requires little labour; the *Shadowing Black*, none at all.

When you have finish'd, wash your *Brushes* with warm-Water and a little *Sope*: Preserve your *Oyl* in *Bladders*; and what *Colour* you leave, plunge the *Pots* into fair *Water*, so as they may stand a little cover'd in it, which will keep them from growing *dry*, till you have occasion for them. That you may not be altogether ignorant of the *charge*, and *Price* of the *Ingredients*, which seldome varies:

Cleer, and sweet *Lin-seed Oyl* is usually had for 4 *s. per Gallon.*
Spruce-Oaker, of all sorts to *Prime* with, 3 *s. per Pound.*
Spanish white, for half a *Penny*: *White-lead* 3 *d. per Pound.*
Vert-de-Greece, clean and bright, 3 *s. per Pound.* *Black* to *shadow* with, exceeding cheap. *Joyners Verniſh*, 6 *d. per Pound.* So as for farther direction; of *White-lead* six pound, *Span. white* six pound, *Spruce-Oker* three pounds, *Vert-de-Greece* half a pound, *Verniſh* one pound, *Shadowing-black* half a pound, *&c.* will serve one for a pretty deal of *Work*, and easily inform what *quantities* you should provide for a greater, or lesser occasion.

We will next impart a *Receipt* for a cheap *Black-dye*, such yet as no *Weather* will fetch out, and that may be of *use* both *within* and *without* doors, upon *Wainscot*, or any fine *Timber*, as I once apply'd it to a *Coach* with perfect successe.

Take of *Galls*, grosly contus'd in a Stone *Mortar* one pound, boyle them in *three quarts* of *White-wine Vinegar* to the diminution of *one* part, two remaining: With *this*, rub the *Wood* twise over; Then, take of the *Silk Diers black*, liquid (cheap, and easie to be had) a convenient quantity, mix it at discretion with *Lamp-black* and *Aqua-vitæ*, sufficient to make it thin enough to passe a *Strainer*: With *this*, die over your *Work* again; and if at any time it be stain'd or spotted with dirt, *&c.* rubbing it only with a *Wollen-cloth* dip'd in *Oyl*, it will not onely recover, but present you with a very fair and noble *poliſh*. There is a *Black* which *Joyners* use to tinge their *Pear-tree* with, and make it resemble *Ebony*, and likewise *Fir*, and other *Woods* for *Cabinets*, *Picture-Frames*, *&c.* which is this.

Take *Log-wood q. s.* boyl it in ordinary *Lye*, and with this paint them over: when 'tis *dry*, work it over a *second* time with *Lamp-black* and strong *Size*: That also *dry*, rub off the dusty *Sootineſs* adhering to it, with a soft *Brush*, or *Cloth*; then melt some *Bees-wax*, mixing it with your *Lamp-black* and *Size*, and when this is cold, make it up into a *Ball*, and rub over your former *Black*: Lastly, with a *Poliſhing brush* (made of short stiff *Boars* Bristles, and fastned with *Wyre*) labour it till the *Lustre* be to your liking. But,

The black *Putty*, wherewith they stop, and fill up *cracks* and

fissures in *Ebony*, and other fine *wood*, is compos'd of a part of the purest *Rosin*, *Bees-wax*, and *Lamp-black* : This they heat and drop into the *Crannies*; then with an *hot-Iron*, glaze it over, and being cold, scrape it even with a sharp *Chisel*, and after all, polish it with a *Brush* of *bents*, a *wollen-cloth*, *Felt*, and an *Hogs-hair* Rubber : Also *Mastic* alone, mingled with a proper *Colour* is of no lesse effect.

35. We conclude all, with that incomparable *Secret* of the *Japon* or *China-Varnishes*, which has hitherto been reserv'd so choicely among the *Virtuosi*; with which I shall suppose to have abundantly gratified the most curious employers of the finer *woods*.

Take a *Pint* of *Spirit* of *Wine* exquisitely *dephlegm'd*, four *Ounces* of *Gum-Lacq*, which thus clense : break it first from the sticks and rubbish, and roughly contusing it in a *Mortar*, put it to *steep* in Fountain water, ti'd up in a *bag* of course *Linnen*, together with a very small morsel of the best *Castle-Sope*, for 12 hours; then rub out all the *tincture* from it, to which add a little *Alum*, and reserve it apart : The *Gum-lacq* remaining in the bag, with one *Ounce* of *Sandrac* (some add as much *Mastic* and *White-Amber*) dissolve in a large *Matras* (well stopp'd) with the *Spirit* of *Wine* by a two dayes *digestion*, frequently agitating it, that it adhere not to the Glasse : Then *strain*, and presse it forth into a lesser *Vessel*; Some, after the first *Infusion* upon the *Ashes*, after twenty four hours, augment the *heat*, and transfer the *Matras* to the *Sand-bach*, till the *Liquor* begins to *simper*; and when the upper part of the *Matras* grows a little *hot*, and that the *Gum-lacq* is melted, which by that time (if the *Operation* be heeded) commonly it is, strain it through a *Linnen-cloth*, and *presse* it 'twixt two *sticks* into the *glass*, to be kept for *use*, which it will eternally be, if well stopp'd.

The *Application*.

The *Wood* which you would *Varnish*, should be very clean, smooth, and without the least *freckle* or flaw; and in case there be any, stop them with a past made of *Gum Tragacanth*, incorporated with what *Colour* you design : Then cover it with a *layer* of *Varnish* purely, till it be sufficiently drench'd with it : Then take *seven* times the quantity of the *Varnish*, as you do of *Colour*, and bruise it in a small earthen dish glaz'd, with a piece of some hard *wood*, till they are well mingled : Apply *this* with a very fine and full *Pencil*; a quarter of an hour after, do it over again, even to three times successively; and if every time it be permitted to *dry*, before you put on the next, 'twill prove the better : Within two hours after these four *layers* (or sooner if you please) *Polish* it with *Presle* (which our *Cabinet-makers* call as I think, *Dutch-Reeds*) wet, or dry; nor much imports it, though in doing this, you should chance to discover any of the *wood*; since you are to passe it over four or five times as above; and if it be not yet smooth enough, *Presle* it again with the *Reeds*; but now very tenderly : Then rub

it

it sufficiently with *Tripoly*, and a little *Oyl-Olive*, or *Water*: Lastly, cover it once or twice again with your *Vernish*, and two days after, polish it as before with *Tripoly*, and a piece of *Hatters Felt*.

The *Colours*.

To make it of a fair *Red*, Take *Spanish Vermilion*, with a quarter part of *Venice-Lacke*.

For *Black*, *Ivory* calcin'd (as *Chymists* speak) 'twixt two well luted *Crucibles*, which being grown'd in *water*, with the best and greenest *Coppros*, and so let *dry*, reserve.

For *Blew*, take *Ultra-Marin*, and onely twice as much *Vernish*, as of *Colour*. The rest, are to be appli'd like the *Red*, except it be the *Green*, which is hard to make fair and vivid, and therefore seldome used.

Note, The right *Japon*, is done with three or four *Layers* of *Vernish* with the *Colours*; then *two* of pure *Vernish un-colour'd* (which is made by the former *Processe*, without the *Sandrac* which is only mingled and used for *Reds*) which must be done with a svvift, and even stroke, that it may not *dry* before the *Aventurin* be seifted on it; and then you are to cover it with so many *Layers* of pure *Vernish*, as will render it like polish'd *Glasse*. Last of all fourbish it with *Tripoly*, *Oyl*, and the *Felt*, as before directed. *Note*,

By *Venturine* is meant the most delicate and slender *Golden-wyre* such as *Embroiderers* use, reduc'd to a kind of *powder*, as small as you can *clipp* it: *this* strew'd upon the first *Layer* of pure *Vernish*, when dry, superinduce what *Colour* you please; and this is pretily imitated with several *Talkes*.

This being the *first* time that so rare a *Secret* has been imparted, the *Reader* will believe that I envy him nothing vvhich may be of *use* to the *Publique*: And though many years since vve vvere *Master* of this *Curiosity*, *Athanasius Kercher* has set dovvn a *Processe* in his late *China Illustrata* pretty faithfully; yet, besides that it onely speaks *Latine* (such as 'tis) it is nothing so *perfect* as ours. Hovvbeit, *there* vve learn, that the most opulent *Province* of *Chekiang* is for nothing more celebrated, than the excellent *Paper* vvhich it produces, and the *Gumme* call'd *Cie* (extilling from certain *Trees*) vvith vvhich they compose their famous *Vernish*, so universally valu'd over the *World*; because it is found above all other *Inventions* of that nature, to preserve, and beautifie *wood*, above any thing vvhich has hitherto been detected: And it has accordingly so generally obtained vvith them, that they have vvhole *Rooms* and ample *Chambers*, Wainscotted therevvith, and divers of their most precious *Furniture*; as *Cabinets*, *Tables*, *Stools*, *Beds*, *Dishes*, *Skreens*, *Staves*, *Frames*, *Pots*, and other *Utensils*: But *long* it vvas ere vve could for all this, approach it in *Europe* to any purpose, till F. *Eustachius Imart* an *Augustine-Monk*, obtain'd the *Secret*, and oblig'd us vvith it.

I know not whether it may be any Service to speak here of *Colour'd Woods*, I mean such as are naturally so, because besides the *Berbery* for *Yellow*, and *Holly* for *White*, we have very few: Our *Inlayers* use *Fustic*, *Locust*, or *Acacia*; *Brasile*, *Prince* and *Rose-wood* for *Yellow* and *Reds*, with several others brought from both the *Indies*; but when they would imitate the naturall turning of *Leaves* in their curious *Compartiments* and bordures of *Flower-works*, they effect it by dipping the pieces (first cut into shape and ready to *In-lay*) so far into *hot Sand*, as they would have the Shadow, and the heat of the *Sand* darkens it so gradually, without detriment or burning the thin Chip, as one would conceive it to be natural: *Note*, that the *Sand* is to be heated in some very thin Brasse pan like to the bottom of a Scale or *Ballance*: This I mention because the burning with *Irons*, or *Aqua-fortis*, is not comparable to it.

I learn also, that *soft Woods* attain little politure without infinite labour, and the expedient is, to *Plane* it often, and every time you do so, to smeare it with strong *Glew*, which easily penetrating, hardens it; and the frequenter you do this, and still *Plane* it, the harder, and sleeker it will remain.

And now we have spoken of *Glew*, 'tis so common and cheap, that I need not tell you it is made by boyling the *sinues*, *&c.* of *Sheeps-trotters*, parings of *raw Hides*, *&c.* to a *Gelly*, and straining it: But the finer, and more delicate Work is best fastned with *Fish Glew*, to be had of the *Drougist* by the name of *Ichthyocolla*; and here I conclude.

36. Let us now then sum up all the good *qualities*, and *transcendent* perfections of *Trees*, in the harmonious *Poets*, Consort of *Elogies*.

—— *Pines* are for *Masts* an useful Wood,
Cedar and *Cypresse*, to build Houses good:
Hence covers for their Carts, and spokes for Wheels
Swains make, and Ships do form their crooked Keels:
The Twiggy *Sallows*, *Elms* with leaves are frait;
Myrtles stout Spears, and *Cornel* good for fight:
The *Yews* into Ityrean Bows are bent;
Smooth *Limes*, and *Box*, the Turners Instrument
Shaves into form, and hollow Cups does trim;
And down the rapid *Po* light *Alders* swim:
In hollow Bark Bees do their hony stive,
And make the Trunk of an old *Oak* their Hive.

——— *dant utile lignum*
Navigiis Pinos, domibus cedrosque cupressosque;
Hinc radios trivere rotis, hinc tympana plaustris
Agricolæ, & pandas ratibus posuere carinas.
Viminibus salices, fœcundæ frondibus Ulmi:
At Myrtus validis hastilibus, & bona bello
Cornus: Ityreos Taxi torquentur in arcus.
Nec Tiliæ læves, aut torno rosile Buxum,
Non formam accipiunt ferroque cavantur acuto:
Nec non torrentem undam levis innatat Alnus
Missa Pado; nec non & apes examina condunt
Corticibusque cavis, vitiosæque Ilicis alvo:
Georg. 2.

and the most ingenious *Ovid*, where he introduces the miraculous *Grove* rais'd by the melodious *Song* of *Orpheus*,

——— Nor Trees of *Chaony*,
The *Poplar*, various *Oaks* that pierce the sky,
Soft *Linden*, smooth-rind *Beech*, unmarried *Bays*,
The brittle *Hasel*, *Ash*, whose spears we praise,
Unknotty *Fir*, the solace shading *Planes*,
Rough *Chessnuts*, *Maple* Fleet with different granes,
Stream-bordering *Willow*, *Lotus* loving takes,
Tuffe *Box*, whom never sappy spring forsakes,

——— *non chaonis abfuit arbor,*
Non nemus Heliadum, non frondibus æsculus altis,
Nec Tiliæ molles, nec Fagus, & innuba Laurus,
Et Coryli fragiles, & Fraxinus utilis hastis;
Enodisque Abies, curvataque glandibus Ilex,
Et Platanus genialis, Acerque coloribus impar.
Amnicolæque simul Salices, & aquatica Lotos,
Perpetuóque virens Buxus, tenuesque Myricæ,
The

The slender *Tamarisk*, with Trees that bear
A purple Fig, nor *Myrtles* absent were.
The wanton *Ivie* wreath'd in amorous twines,
Vines bearing grapes, and *Elms* supporting *Vines*,
Straight *Service-Trees*, Trees dropping *Pitch*, fruit-red
Arbutus, these the rest accompanied.
With limber *Palmes*, of Victory the prize:
And upright *Pine*, whose leaves like bristles rise,
Priz'd by the Mother of the Gods. ——

Et bicolor Myrtus, & baccis cærula Ficus.
Vos quoque flexi-pedes Hederæ venistis, & una
Pampineæ Vites, & amictæ Vitibus Ulmi,
Ornique, & Piceæ, Pomoque onerata rubenti
Arbutus, & lentæ victoris præmia Palmæ,
Et succincta comas, hirsutaque vertice Pinus
Grata Deum matri, &c. ——

Sandys. *Met.* 10.

as the incomparable *Poet* goes on, and is imitated by our divine *Spencer*, where he brings his gentle *Knight* into a shady *Grove*, praising

——the *Trees* so straight, and high,
The sailing *Pine*, the *Cedar* proud, and tall,
The Vine-prop *Elm*, the *Poplar* never dry,
The builder *Oak*, sole King of *Forests* all;
The *Aspine*, good for Staves; the *Cypress* funeral:
The *Laurel*, meede of mighty Conquerours
And Poets sage; The *Fir* that weepeth still;
The *Willow*, worn of forlorn Paramours;
The *Eugh*, obedient to the benders will;
The *Birch* for Shafts; the *Sallow* for the Mill;
The *Myrrhe* sweet bleeding in the bitter wound;
The War-like *Beech*; the *Ash* for nothing ill;
The fruitful *Olive*; and the *Platane* round;
The Carver *Holm*; the *Maple*, seldom inward sound.

Canto. 1.

And in this *Symphony* might the noble *Tasso* bear likewise his part; but that these are sufficient, *& tria sunt omnia.*

37. For we have already spoken of that modern *Art* of *Tapping Trees* in the *Spring*, by which doubtlesse some excellent and *specific Medicines* may be attained; as from the *Birch* for the *Stone*; from *Elms* and *Elder* against *Feavers*; so from the *Vine*, the *Oak*, and even the very *Bramble*, *&c.* besides the wholesom and pleasant *Drinks*, *Spirits*, *&c.* that may possibly be educed out of them all, which we leave to the *Industrious*, satisfying our selves, that we have been among the *first* who have *hinted*, and *Publish'd* the *wayes* of *performing* it.

What now remains concerns onely some general *Precepts*, and *Directions* applicable to most of that we have formerly touched; together with a *Brief* of what farther *Laws* have been enacted for the *Improvement*, and preservation of *Woods*; and which having dispatch'd, shall with a short *Paræneſis* touching the present ordering, and disposing of his *Majesties Plantations* for the future benefit of the *Nation*, put an end to this rustick Discourse.

CHAP.

CHAP. XXXII.

Aphorisms, *or certain general* Precepts *of use to the foregoing* Chapters.

1. TRy all sorts of *Seeds*, and by their *thriving* you shall best discern what are the most proper *kinds* for Grounds,

Quippe solo natura subest——

and of these design the main of your *Plantation*.

2. Keep your newly sown *seeds* continually fresh, and in the *shade* (as much as may be) till they peep.

3. All *curious* Seeds, and Plants are diligently to be *weeded*, till they are strong enough to over-drop or suppresse them: And you shall carefully *haw*, *half-dig*, and stir up the earth about their *Roots* during the first *three* years; especially, in the *Vernal*, and *Autumnal Æquinoxes*: This work to be done in a *moist* season for the *first* year to prevent the *dust*, and the suffocating of the tender *buds*; but afterwards, in the more dry weather.

4. *Plants*, rais'd from *seed*, shall be *thinn'd* where they come up too *thick*; and none so fit as you thus draw to be *transplanted* into *Hedge-rowes*, especially, where ground is precious.

5. In *transplanting*, omit not the placing of your *Trees* towards their accustom'd *Aspect*.

6. Remove the *softest* wood to the *moistest* grounds,

Divisæ arboribus patriæ——

7. Begin to Transplant *Forest-trees* when the *leaves fall* after *Michaelmasse*; you may adventure when they are *tarnish'd*, and grow yellow: It is lost time to commence later, and for the most part of your *Trees*, early *Transplanters* seldom repent; for sometimes a tedious band of *Frost* prevents the whole *season*, and the *baldness* of the *Tree* is a note of deceipt; for some *Oaks*, and most *Beeches*, preserve their *dead leaves* till *new* ones push them off.

8. *Set* deeper in the *lighter grounds* than in the *strong*; but shalloweſt in *Clay*: five inches is sufficient for the *dryest*, and one or two for the *moist*, provided you establish them against *winds*.

9. *Plant* forth in *warm*, and *moist* seasons; the *Air* tranquil and serene; the *wind* westerly; but never whiles it actually *freezes*, *Raines*, or in *Misty* Weather; for it moulds, and infects the *Roots*.

10. What

10. What you gather, and draw out of *VVoods*, plant immediately, for their *Roots* are very apt to be mortified by the *winds*, and cold air.

11. *Trees*, produc'd from *Seeds* must have the *Tap-roots* abated (the *VVallnut-tree*, and some others excepted, and yet if Planted meerly for the *Fruit*, some affirm it may be adventur'd on with successe) and the bruised parts cut away; but sparing the *fibrous*, for they are the principal *feeders*; and those who cleanse them too much, are punish'd for the mistake.

12. In *Spring*, rub off some of the *collateral* Buds, to check the exuberancy of *Sap* in the *branches*, till the *Roots* be well establish'd.

13. *Transplant* no more then you well *Fence*; for *that* neglected, *Tree-culture* comes to nothing: Therefore all young set *Trees* should be defended from the *winds*, and *Sun*; especially the *East*, and *North*, till their *Roots* are fixed; that is, till you perceive them *shoot*; and the not exactly observing of this *Article*, is cause of the perishing of the most tender *Plantations*; for it is the invasion of these two *assailants* which does more mischief to our new set, and lesse hardy *Trees*, then the most severe and durable *Frosts* of a whole *VVinter*.

14. The propereſt *Soil*, and most natural, apply to distinct *species*, *Nec verò terræ ferre omnes omnia possunt.* Yet we find by experience, that most of our *Forest-Trees* grow well enough in the *coursest* Lands; provided there be a competent depth of *mould*: For albeit most of our *wild Plants* covet to run just under the *surface*, yet where there is not sufficient depth to *cool* them, and entertain the *Moisture* and *Influences*, they are neither lasting, nor prosperous.

15. *VVood* well Planted, will grow in *Mooriſh*, *Boggy*, *Heathy*, and the *stonieſt* grounds: Only the white, and blew *clay* (which is commonly the beſt *Pasture*) is the worst for *wood*; and such good *Timber* as we find in any of these (*Oaks* excepted) is of an excessive *age*, requiring thrice the time to arrive at their stature.

16. If the *season* require it, all new *Plantations* are to be plied with *waterings*, which is better pour'd into a *circle* at some distance from the *Roots*, which should continually be *bared* of *Grasse*, and if the *water* be *rich*, or *impregnated*, the *shoots* will soon discover it; for the *Liquor* being *percolated* through a quantity of *earth* will carry the *nitrous* virtue of the *soil* with it; by no means therefore *water* at the *stem*; because it washes the *mould* from the *Root*, comes *too* crude, and endangers their *rotting*: But,

17. For the cooling and refreshing *Tree-roots*, the congesting of *Pot-sheards*, *Flints*, or *Pibbles* near the foot of the *stem*, is preferable to all other; and so the *Poet*,

Lime-

Lime-stones, or squallid Shells, that may the Rain, Vapors, and gliding moisture entertain.

Aut lapidem bibulum, aut squallenteis infode conchas,
Inter enim labentur aquæ, tenuisque subibit
Halitus——
Georg. 2.

But remember you *remove* them after a competent time, else the *Vermine*, *Snails*, and *Insects* which they produce and shelter, will gnaw, and greatly injure their *Bark*.

18. Young *Plants* will be strangled with *Corn*, *Oates*, *Pease*, or *Hemp*, or any rankly growing *Grain*, if a competent *circle* and distance be not left (as of near a *yard*, or so) of the *Stem*; this is a *useful* remark.

19. *Cut* no *Trees* (especially, having an eminent *Pith* in them, being *young* and *tender* too) when either *heat*, or *cold* are in extreams; nor in very *wet*, or *snowy* weather; and in this work it is profitable to discharge all *Trees* of unthriving, broken, wind-shaken *browse*, and such as our *Law* terms *Cablicia*, and to take them off to the quick,

——ne pars sincera trahatur.

And for *Ever-greens*, especially such as are tender, prune them not after Planting, till they do *Radicare*, that is, by some little fresh *shoot*, discover that they have taken.

I will Conclude with the *Tecnical* names, or *dissimiler* parts of *Trees*, as I find them enumerated by the Industrious and Learned Dr. *Merett*. *Scapus*, *Truncus*, *Cortex*, *Liber*, *Malicorium*, *Matrix*, *Medulla & Cor*, *Pecten*, *Circuli*, *Surculi*, *Rami*, *Sarmenta*, *Ramusculi*, *Spadix*, *Vimen*, *Virgultum & Cremium*, *Vitilia*, *Talea*, *Scobs*, *Termes*, *Turiones*, *Frondes*, *Cachryas & Nucamentum*, *Julus & Catulus*, *Comæ*: The Species *Frutex*, *Suffrutex*, *&c.* all which I leave to be put into good and proper *English*, by those who shall once oblige our *Nation* with a full, and absolutely compleat *Dictionary*, as yet a great *desiderate* amongst us.

To this I shall add, the *Time*, and *Season* of the *flourishing* of *Trees*, computing from the entrie of each *Month* as the *figures* denote; that is, from *March* (where the *Doctor* begings) inclusively. March, *Acer* 3. ((i) from March to May, *viz. one* Month; *& sic de cæteris*) *Populus* 2. *Quercus* 5. *Sorbus* 2. *Ulmus* 2. April, *Alnus* 2. *Betula* 2. *Castanea* 4. *Euonymus* 2. *Fagus* 2. *Fraxinus* 2. *Nux-Juglans* 3. *Salix* 2. *Sambucus* 2. May, *Cornus* 2. *Genista* 4. *Juniperus*, *Morus* 2. *Tilia* 4. June, *Aquifolium* 2. July, *Arbutus* 2. Feb. *Buxus* 2.

Many more usefull *Observations* are to be collected, and added to these, from the diligent experience of *Planters*.

CHAP.

CHAP. XXXIII.

Of the Laws *and* Statutes *for the* Preservation, *and* Improvement *of* Woods, *&c.*

1. 'Tis not to be passed by, that the very first *Law* we find which was ever *promulg'd*, was concerning *Trees*; and that *Laws* themselves were first *Written* upon them, or *Tables* compos'd of them; and after that Establishment in *Paradise*, the *next* we meet withal are as Antient as *Moses*; you may find the *Statute* at large in *Deut. c.* 20. *v.* 19, 20. Which though they chiefly tended to *Fruit-Trees*, even in an *Enemies* Countrey, yet you will find a case of *necessity*, onely alledg'd for the *permission* to destroy any other.

2. To Summe up briefly the *Lawes*, and Civil *Constitutions* of great *Antiquity*, by which *Servius* informs us 'twas no lesse than Capital, *alienas arbores incidere*; the *Lex Aquilia*, and those of the xii. *Tabb.* mention'd by *Paulus*, *Cajus*, *Julianus*, and others of that *Robe*, repeated divers more.

It was by those Sacred *Constitutions* provided, that none might so much as Plant *Trees* on the Confines of his *Neighbours Ground*, but he was to leave a *space* of at the least *five foot*, for the smallest *Tree*, that they might not injure him with their shadow. *Si Arbor in Vicini agrum impenderit, eam sublucato, &c.* and if for all this, any hung over farther, 'twas to be *strip'd* up *fifteen foot*; And this Law *Baldwinus*, *Olderdorpius*, and *Hotoman* recites out of *Ulpian L.* 1. *F. de Arb. Cædend.* where we have the *Prætors Interdict* expres'd, and the impendent *Wood* adjudged to appertain to him whose *field*, or *fence* was thereby damnified: Nay, the Wise *Solon* prescribed *Ordinances* for the very *distances* of *Trees*; as the divine *Plato* did against stealing of *fruit*, and violating of *Plantations*: And the interdiction *de Glande legenda* runs thus in *Ulpian*, *AIT PRÆTOR, GLANDEM, QUÆ EX ILLIUS AGRO IN TUUM CADIT, QUO MINUS ILLI TERTIO QUOQUE DIE LEGERE AUFERRE LICEAT, VIM FIERI VETO.* And yet, though by the *Prætors* permission he might come every *third* day to gather it up without *Trespasse*, his *Neighbour* was to share of the *Mast* which so fell into his *Ground*; and this *Chapter* is well supplied by *Pliny l.* 16. *c.* 5. and *Cajus* upon the *Place*, interprets *Glandem* to signifie not the *Acorns* of the *Oak* alone, but all sorts of *fruit* whatsoever, *l.* 136. *F. de Verb. Signif.* L. *Unis* ff. *de Glande leg.* as by usage of the *Greeks*, amongst whom ἀκροδρύα imports all kind of *Trees.*

Moreover, no *Trees* might be Planted neer *Publique Aquæ-ducts*, least the *Roots* should insinuate into, and displace the *Stones*: Nor on the very margent of Navigable *Rivers*, lest the *Boats* and other *Vessels* passing to and fro, should be hindred, and therefore such impediments were call'd *Retæ*, *quia Naves retinent*, sayes the *Gloss*; and because the falling of the *leaves* corrupted the *Water*. So nor within such a distance of *High ways* (which also our own *Laws* prohibit) that they might *dry* the better, and lesse cumber the *Traveller*. *Trees* that obstructed the *Foundation* of *Houses* were to be fell'd; *Bartol. L. 1. doct. c. de Interdict. Ulp.* in *L. priore* ff. *de Arborum cædend. Trees* spreading their *Roots* in neighbour-ground, to be in *common*; See *Cujas* and *Paulus* in L. Arb. ff *de Communi dividend.* where more of the *Alienation* of *Trees* fell'd, and not standing but with the *Funds*, as also of the *Use-fruit* of *Trees*, and the difference 'twixt *Arbores Grandes*, and *Cremiales* or *Ceduæ*, of all which *Ulpian*, *Baldus*, *Alciat*, with the *Lawes* to govern the *Conlucatores* and *Sublucatores*, and *Pruners*; *vide Pau. S. c. Sent. l. 5. Festus*, *&c.* for we passe over what concerns *Vines* and *Olive-trees*, to be found in *Cato de R. R. &c.* Nor is it here that we design to enlarge, as those who have *philologiz'd* on this occasion *de Sycophantis*, and other curious *criticismes*; but passe now on, and confine my self to the prudent *Sanctions* of our own *Parliaments*: for though according to the old and best Spirit of true *English*, we ought to be more powerfully led by his *Majesties* Example, than to have need of more cogent and violent *Laws*; yet that our *Discourse* may be as ample, and as little defective as we can render it, something 'tis fit should be spoken concerning such *Lawes* and *Ordinances* as have been from time to time constituted amongst us for the *Encouragement*, and *Direction* of such as do well, as for the *Animadversion* and Punishment of those who continue *refractory*, which I deduce in this *order*.

3. From the time of *Edward* the *fourth*, were enacted many excellent *Lawes* for the *Planting*, *securing*, *cutting*, and *ordering* of *Woods*, *Copses*, and *Under woods*, as then they took cognizance of them; together with the several *penalties* upon the *Infringers*; especially from the 25 of *Hen.* 8 17. *&c.* confirm'd by the 13 and 27. of Q. *Eliz. cap.* 25. 19. *&c.* which are diligently to be consulted, revived, put in execution, and enlarg'd where any defect is apparent; as in particular the *Act* of exempting of *Timber* of 22 years growth from *Tythe*, for a longer period, to render it compleat; and more effectual to their *Improvement*: And that *Law* repealed, by which *Willows*, *Sallows*, *Oziers*, *&c.* which they term *Sub bois*, are reputed but as *Weeds*.

4. Severer *punishments* have lately been ordain'd against our *Wood-stealers*, destroyers of young *Trees*, *&c.* by an antient *Law* of some *Nation*, I read he forfeited his *Hand*, who *beheaded* a *Tree* without permission of the *Owner*; and I cannot say they are sharp ones, when I compare the severity of our *Lawes* against *Mare stealers*; nor am I by inclination the least *cruel*; but I do affirm, we might

as

as well live without *Mares*, as without *Masts* and *Ships*, which are our *wooden*, but no lesse profitable *Horses*.

5. And here we cannot but perstringe those *Royotous* Assemblies of *Idle People*, who under pretence of *going a Maying* (as they term it) do oftentimes *cut down*, and *carry away* fine straight *Trees*, to set up before some *Ale-house*, or *Revelling-place*, where they keep their drunken *Bacchanalias*: For though this *Custom* was, I read, introduc'd by the *Emperor Anastasius*, to abolish the *Gentil Majana* of the *Romans* at *Ostia*; which was to transfer a great *Oaken-Tree* out of some *Forest* into the *Town*, and erect it before their *Mistris's* Door; yet I think it were better to be quite abolish'd amongst us, for many *reasons*, besides that of occasioning so much *wast* and *spoyl* as we find is done to *Trees* at that *Season*, under this wanton pretence, by *breaking*, *mangling*, and *tearing* down of *branches*, and intire *Arms* of *Trees*, to adorn their *Wooden-Idol*. The *Imperial Law* against such *disorders* we have in L. ob. id. fl. *ad legem Aquill.* & in ff. l. 47. *Tit.* 7. *Arborem furtim cæsarum*: See also *Triphon.* L. ig. *de Bon. off. cont. tab. vel in ligna focaria.* *L. Ligni* ff. *de Lege* 3. *&c.*

To these I might add the *Laws* of our King *Ina*; or as the Learned *Lambert* calls them, Αρχαιονομία *de priscis Anglorum legibus*, whose Title is, Be pupu bapnete: of Burning Trees: The *Sanction* runs thus.

If any one set fire of a fell'd Wood, *he shall be punished, and besides pay* three pounds, *and for those who clandestinely cut* Wood (*of which the very sound of the* Axe *shall be sufficient* Conviction) *for every* Tree, *he shall be mulcted* thirty *shillings. A Tree* so *fell'd under whose Shadow* thirty Hoggs *can stand, shall be mulcted at* three pounds, *&c.*

6. I have heard, that in the great *Expedition* of 88, it was expressly enjoyn'd the *Spanish* Commanders of that signal *Armada*; that if when *landed* they should not be able to subdue our *Nation*, and make good their *Conquest*; they should yet be sure not to leave a *Tree* standing in the *Forest* of *Dean*: It was like the *Policy* of the *Philistines*, when the poor *Israelites* went down to their Enemies *Smiths* to sharpen every man his *Tools*; for as they said, *lest the Hebrews make them Swords, or Spears*; so these, *lest the English build them Ships*, and *Men of War*: Whether this were so, or not; certain it is, we cannot be too *jealous* for the preservation of our *Woods*; and especially of those eminent, and, with *care*, inexhaustible *Magazines*: I dare not suggest the encouragement of a yet farther *restraint*, that even *Proprietors* themselves should not presume to make havock of some of their own *Woods*, to feed their *prodigality*, and heap *fuel* to their *vices*; but it is worthy of our observation, that (in that inimitable *Oration*, the second *Philippic*) *Cicero* does not so sharply reproach his great *Antagonist* for any other of his *Extravagancies* (which yet he there enumerates) as for his *wasteful* disposure of certain *Wood-lands* belonging to the *Common-wealth*, amongst his jovial *Bravo's*, and

leud Companions; *tua ista detrimenta sunt* (meaning his *Debauches*) *illa nostra*; speaking of the *Timber*.

7. But to the *Laws*: it were to be wish'd that our tender, and improvable *Woods*, should not admit of *Cattle*, by any means, till they were quite grown out of *reach*; the *Statutes* which connive at it, in favour of *Custom*, and for the satisfying of a few clamorous and rude *Commoners*, being too *indulgent*; since it is very evident, that less then a 14. or 15. years *enclosure* is, in most places, too soon; and our most *material* Trees would be of *infinite* more worth and improvement, were the *Standards* suffer'd to grow to *Timber*, and not so frequently cut, at the next *felling* of the *Wood*, as the general custom is. In 22 *Edw.* 4. the liberty arriv'd but to *seven* years after a *felling* of a *Forest* or *Purlieu*; and but *three* years before, without special *license*: This was very narrow; but let us then look on *England* as an over-grown Country.

8. *Wood* in *Parks* was afterwards to be *four* years Fenced, upon *felling*: and yearling *Colts*, and *Calves* might be put into inclosed *Woods* after two: By the 13 *Eliz.* five years, and no other *Cattle* till six, if the growth was under *fourteen* years; or until *eight*, if exceeding that age till the last *felling*: All which *Statutes* being by the *Act* of *Hen.* 8. but *temporal*, this *Parliament* of *Eliz.* thought fit to make *perpetual*.

9. Then, to prevent the destructive razing, and converting of *Woods* to *Pasture*: No *wood* of two *Acres*, and above two *furlongs* from the *Mansion* House, should be indulg'd: And the *prohibitions* are good against *Assarts* made in *forests*, *&c.* without *license*: The *Penalties* are indeed great; but how seldome inflicted? and what is novv more easie, than Compounding for such a *license*?

In some parts of *Germany*, vvhere a single *Tree* is observ'd to be extraordinary fertile, a constant, and plentiful *Mast-bearer*; there are *Laws* to prohibite their *felling* without special leave: And it was well *Enacted* amongst us, that even the *Owners* of *woods* within *Chases*, should not cut down the *Timber* without view of *Officers*; this *Act* being in *affirmance* of the *Common Law*, and not to be violated without *Prescription*: See the *Case* cited by my Lord *Cook* in his *Comment* on *Littleton. Tenure Burgage. L.* 2. *Sect.* 170. Or if not within *Chases*, yet where a *Common-person* had liberty of *Chase*, *&c.* and this would be of much benefit, had the *Regarders* perform'd their duty, as 'tis at large described in the *Writ* of the 12 *Articles*; and that the *Surcharge* of the *Forests* had been honestly inspected with the due *Perambulations*, and ancient *Metes*: Thus should the *Justices* of *Eire* dispose of no *Woods* without expresse *Commission*, and in convenient places: *Minuti blaterones quercuum, culi, & curbi*, as our *Law* terms *wind-falls*, *dotterels*, *scrags*, *&c.* and no others.

10. Care is likewise by our *Laws* to be taken that no unnecessary *Imbezelment* be made by pretences of Repair of *Paling*, *Lodges*, *Bromse* for *Deer*, *&c.* *Wind-falls*, *Root-falls*; dead, and *Sear-trees*, all

all which is subject to the Inspection of the *Warders, Justices, &c.* and even trespasses done *de Viridi* on boughs of *Trees, Thickets*, and the like; which (as has been shew'd) are very great impediments to their growth and prosperity, and should be duly looked after, and punish'd; and the great neglect of *Swainmote-Courts* reformed, &c. See *Consuet. & Assis. Forest. Pannagium*, or *Pastura pecorum & de Glandibus, Fleta, &c. Manwoods Forest-lawes: Cook pla. fol. 366. li. 8. fol. 138.*

11. Finally, that the exorbitance, and increase of devouring *Iron-mills* were looked into, as to their *distance*, and *number* neer the *Seas*, or Navigable *Rivers*; And what if some of them were even *remov'd* into another *world?* 'twere better to purchase all our *Iron* out of *America*, than thus to exhaust our *woods* at *home*, although (I doubt not) they might be so order'd, as to be rather a means of conserving them. There was a *Statute* made by Queen *Eliz.* to prohibite the converting of *Timber trees* to *Coal*, or other *Fuel* for the use of *Iron-mills*; if the *Tree* were of one foot square, and growing within fourteen Miles of the *Sea*, or the greater *Rivers, &c.* 'tis pity some of those places in *Kent, Sussex*, and *Surrey* were excepted in the *Proviso*, for the reason expres'd in a *Statute* made 23 *Eliz.* by which even the imploying of any *under-wood*, as well as *great Trees*, was prohibited within 22 miles of *London*, and many other Navigable *Rivers, Creeks*, and other lesser distances from some parts of *Sussex-Downs, Cinque-Ports, Havens, &c.*

There are several *Acres* of *wood-land* of no mean circuit near *Rochester*, in the County of *Kent*, extending as far as *Bexley*, and indeed, for many miles about *Shoters-Hill*, near the *River* of *Thames*, which, were his *Majesty* owner of, might in few *years*, be of an *un-valuable Improvement* and benefit, considering how apt they are to grow *Forest*, and how opportune they lye for the *use* of his *Royal Navy* at *Chatham.*

12. But yet to prove what it is to manage *Woods* discreetly; I read of one Mr. *Christopher Darell* a *Surrey* Gentleman of *Nudigate*, that had a particular *Indulgence* for the cutting of *his* Woods at pleasure, though a great *Iron-Master*; because he so order'd his *Works*, that they were a means of preserving even his *Woods*; notwithstanding those unsatiable *devourers*: This may appear a *Paradox*, but is to be made out; and I have heard my own *Father* (whose *Estate* was none of the least *wooded* in *England*) affirm, that a *Forge*, and some other *Mills*, to which he furnish'd much *fuel*, were a means of maintaining, and improving his *woods*; I suppose, by increasing the *Industry* of *Planting*, and care; as what he has now left standing of his own *Planting, enclosing*, and *cherishing*, in the *possession* of my most honoured Brother, *George Evelin* of *Wotton* in the same *County*, does sufficiently evince; a most laudable *Monument* of his *Industry*, and rare Example, for without such an *Example*, and such an *Application*, I am no *Advocate* for *Iron-works*, but a declared *denouncer*: But *Nature* has thought fit

fit to produce this *wasting-Oare* more plentifully in *Wood-land*, than any other *Ground*, and to enrich our *Forests* to their own Destruction,

O *Poverty*, still safe! and therefore found
Insep'rably with *Mischiefs* under ground!
Woods tall, and Reverend from all time appear
Inviolable, where no *Mine* is near.

O semper bona pauperies! & conditus altâ
Thesaurus tellure nocens! O semper ovantes,
Integræ, salvæque solo non divite Sylvæ!

Cowleii *Pl. l. 6.*

for so our sweet *Poet* deplores the Fate of the *Forest* of *Dean*.

13. The same *Act* we have Confirmed, and enlarged in the Seventeenth of the said *Queen*, for the preserving of *Timber-Trees*, and the Penalties of impairing *VVoods* much increased; the *Tops* and *offals* onely permitted to be made use of for this imployment.

14. As to the Law of *Tythes*, I find *Timber Trees* pay none, but others do, both for *Body*, *Branches*, *Bark*, *Fruit*, *Root*, and even the *Suckers* growing out of them; and the Tenth of the Body sold, or kept: And so of *VVillows*, *Sallows*, and all other *Trees* not apt for *Timber*: Also of *Sylva cædua*, as *Coppices*, and *Under-woods*, pay the *tenth* when ever the *Proprietor* receives his *nine* Parts. But if any of these we have named un-exempted are cut onely for *Mounds*, *Fencing*, or *Plow-boot* within the Parish in which they grow, or for the Fuel of the *Owner*, no *Tythes* are due, though the *Vicar* have the *Tyth-wood*, and the *Parson* that of the places so incloſed; nor are *Under-woods* grub'd up by the Roots *Tythable*, unless for *this*, and any of the former *cases* there be *Prescription*. But for *Timber-trees*, such as *Oak*, *Ash*, *Elm* (which are accounted *Timber* in all places after the first *twenty years*) also *Beech*, *Hornbeam*, *Maple*, *Aspen*, and even *Hasel* (many of which are in some *Countries* reputed *Timber*) they are not to pay *Tithes*, unless they are fell'd before the said age of *twenty years* from their first *Planting*. *Note here*,

If the *Owner* fell a *fruit-tree* (of which the *Parson* has had *tythe* that *year*) and convert the *wood* into *fuel*, the *tythe* shall cease; because he cannot receive the *tythe* of *one* thing *twice* in one year.

Beech, in Countrys where it abounds, is not *tythable*; because in such places 'tis not accounted *Timber*. 16 *Jac. Co. B. Pinders Case.*

Cherry-trees in *Buckinghamshire* have been adjudged *Timber*, and *Tythe-free*. *Pasch.* 17 *Jac.* B. R.

If a *Tree* be lop'd under twenty years growth, and afterwards be permitted to grow past twenty years, and then be lop'd again, no *tythe* is due for it, though at the first cutting it were not so.

If *wood* be cut for *hedges*, which is not *tythable*, and any be left of it un employ'd, no *tythe* shall be paid for it.

If *wood* be cut for *Hop-poles* (where the *Parson* or *Vicar* has *tythe Hops*) in this case he shall not have *tythe* of *Hop-poles*.

If

If a great *wood* consist chiefly of *Under-wood Tythable*, and some great *trees* of *Beech*, or the like grow dispersedly amongst them; *Tythe* is due, unless the *Custom* be otherwise of all both great and lesser together: And in like manner if a *wood* consist for the most part of *Timber trees*, with some small scatterings of *Under-wood* amongst them, no *Tythe* shall be paid for the *Under-wood* or *Bushes*. *Trin.* 19 *Jac.* B. R. *Adjudg.* 16 *Jac.* in C. B. *Leonards case.*

No *Tythe* is to be paid of Common of *Estovers*; or the *wood* burnt in ones *House*. Now as to the manner of *Payment.*

To give the *Parson* the Tenth *Acre* of *Wood* in a *Coppice*, or the *tenth Cord* (provided they are equal) is a good payment, and setting forth of *Tythe*, especially if the *Custom* confirm it.

The *Tythe* of *Mast* of *Oak*, or *Beech*, if sold, must be answer'd by the *tenth Penny*: if eaten by *Swine*, the *worth* of it. And thus much we thought fit to add concerning *Predial Tythes*; who has desire to be farther informed may consult my Lord *Cook's Rep.* 11. 48, 49. 81. *Plow.* 470. *Brownlows Rep.* 1 *part.* 94. 2 *part.* 150. D. & St. 169. *&c*: But let us see what others do.

15. The King of *Spain* has neer *Bilbao*, sixteen times as many *Acres* of *Copse-wood* as are fit to be cut for *Coal* in one year; so that when 'tis ready to be *fell'd*, an *Officer* first marks such as are like to prove *Ship-timber*, which are let stand, as so many *sacred*, and *dedicate* Trees: But by this means the *Iron works* are plentifully supplied in the same place, without at all diminishing the stock of *Timber*. Then in *Biscay* again, every *Proprietor*, and other, Plants *three* for *one* which he cuts down; and the *Law* obliging them is most severely executed. There indeed are few, or no *Copses*; but all are *Pollards*; and the very *lopping* (I am assur'd) does furnish the *Iron works* with sufficient to support them.

16. What the practise is for the maintaining of these kind of *Plantations* in *Germany*, and *France*, has already been observ'd to this *Illustrious Society* by the Learned Dr. *Meret*; *viz* that the *Lords* and (for the *Crown-lands*) the *Kings Commissioners*, divide the *Woods*, and *Forests*, into *eighty* partitions; every year felling one of the divisions; so as no *wood* is fell'd in less than *fourscore* years: And when any one *partition* is to be cut down, the *Officer*, or *Lord* contracts with the *Buyer* that he shall at the distance of every *twenty* foot (which is somewhat neer) leave a good, fair, sound and fruitful *Oak* standing. Those of 'twixt *forty*, and *fifty* years they reckon for the *best*, and then they are to *fence* these *Trees* from all sorts of *Beasts*, and injuries, for a competent time; which being done, at the *season*, down fall the *Acorns*, which (with the *Autumnal* rains beaten into the earth) take *root*, and in a short time furnish all the *Wood* again, where they let them grow for *four*, or *five* years; and then grub up some of them for *Fuel*, or *Transplantations*, and leave the most *provable* of them, to continue for *Timber.*

17. The *French* King permits none of his *Oak woods*, though belonging (some of them) to *Mounsieur* (his *Royal Brother*) in *Appenage*,

penage, to be cut down; till his own *Surveyors*, and *Officers*, have first *marked* them out; nor are any *fell'd* beyond such a Circuit: Then are they sufficiently *fenc'd* by him who *buys*; and no *Cattle* whatsoever suffer'd to be put in, till the very *seedlings* (which spring up of the *Acorns*) are perfectly out of danger. But *these*, and many other wholsom *Ordinances*, especially, as they concern the *Forest* of *Dean*, we have comprised in the late *Statute* of the *twentieth* of his *Majesties* Reign, which I find Enacted *five years* after the first *Edition* of this *Treatise*: And these *Lawes* are worthy our perusal; as also the *Statute* prescribing a *Scheme* of *Proportions* for the several scantlings of *Building-Timber* (besides what we have already touched *Chap.* 31.) which you have 19 *Car.* 2. intituled, *An Act for the Re-building of London*; to which I refer the Reader.

CHAP. XXXIV.

The Paræneſis *and* Concluſion, *containing ſome* Encouragements *and* Propoſals, *for the* Planting, *and* Improvement *of his* Majeſties Foreſts.

1. SInce our *Foreſts* are undoubtedly the greateſt *Magazines* of the *Wealth*, and *Glory* of this *Nation*; and our *Oaks* the trueſt *Oracles* of its *perpetuity* and *happineſſe*, as being the onely ſupport of that *Navigation* which makes us fear'd *abroad*, and flouriſh at *Home*; it has been ſtrangely wonder'd at by ſome good *Patriots*, how it comes to paſſe that many *Gentlemen* have frequently repair'd, or gain'd a ſudden *Fortune*, with *Plowing* part of their *Parks*, and ſetting out their fat grounds to *Gard'ners*, *&c.* and very wild *wood-land* parcels (as may be inſtanc'd in ſeveral places) to dreſſers of *Hop-yards*, *&c.* whiles the *Royal portion* lyes folded up in a *Napkin*, uncultivated, and neglected; eſpecially, thoſe Great, and ample *Foreſts*; where though *plowing*, and *ſowing* has been forbidden, a *Royal Command*, and *Deſign*, may well diſpenſe with it, and the breaking up of thoſe *Intervals*, advance the growth of the *Trees* to an incredible *Improvement*.

2. It is therefore inſiſted on, that there is not a cheaper, eaſier, or more prompt *expedient* to advance *Ship timber*, than to ſolicit, that in all his *Majeſties Foreſts*, *VVoods*, and *Parks*, the ſpreading *Oak*, *&c.* (which we have formerly deſcribed) be cheriſh'd, by Plowing, and ſowing *Barley*, *Rye*, *&c.* (with due ſupply of *culture* and *Soyl*, between them) as far as may (without danger of the *Plow-ſhare*) be broken up. But this is onely where *theſe* Trees

are

are arriv'd to some magnitude, and stand at competent distances; a *hundred*, or *fifty* yards (for their *Roots* derive relief far beyond the reach of any *boughs*) as do the *Wallnut-trees* in *Burgundy*, which stand in their best *Plow'd lands*.

3. But, that we may particularize in his *Majesties Forests* of *Dean*, *Sherewood*, *&c.* and in some sort gratifie the *Quæries* of the Honourable, the principal *Officers* and *Commissioners* of the *Navy*, I am advis'd by such as are every way *judicious*, and of long *experience* in those parts; that to *enclose* would be an excellent way: But it is to be consider'd, that the *People*, *viz. Foresters*, and *Borderers*, are not generally so *civil*, and reasonable, as might be wished; and therefore to design a solid *Improvement* in such places, his *Majesty* must assert his *Power*, with a firm and high Resolution to *reduce* these men to their due *Obedience*, and to a necessity of *submitting* to their *own*, and the *publick* utility; though they preserv'd their *industry* this way, at a very tolerable *rate* upon that *condition*, whiles some *person* of *trust*, and integrity, did regulate, and supervise the *Mounds* and *fences*, and destine some portions frequently set apart, for the raising, and propagating of *Woods*, till the whole *Nation* were furnish'd for *posterity*.

4. And which Work if his *Majesty* shall resolve to accomplish; he will leave such an everlasting *Obligation* on his *People*, and raise such a *Monument* to his *fame*, as the *Ages* for a *thousand* years to come, shall have cause to celebrate his precious *Memory*, and his *Royal Successors* to emulate his *Virtue*. For thus (besides the future expectations) it would in *present*, be no deduction from his *Majesties Treasure*, but some increase; and fall in time to be a fair and worthy *Accession* to it; whiles this kind of *propriety* would be the most likely expedient to *civilize* those wild and poor *Borderers*; and to secure the vast and spreading heart of the *Forest*, which with all this *Indulgence*, would be ample enough for a Princely *Demeasnes*: And if the difficulty be to find out who *knows*, or *acknowledges* what are the *Bordures*; this *Article* were worthy, and becoming of as serious an *Inquisition*, as the *Legislative* Power of the whole *Nation* can contrive.

5. The Sum of all, is; get the *Bordures* well *Tenanted*, by long *Terms*, and easie *Rents*, and this will invite and encourage *Takers*; whilst the *middle*, most secure, and interiour parts would be a *Royal portion*. Let his *Majesty* therefore admit of any willing *Adventurers* in this vast *Circle* for such *Enclosures* in the *Precincts*; and rather of *more*, than of *few*, though an *hundred* or *two*, should joyn together for any *Enclosure* of *five hundred Acres* more, or lesse; that *multitudes* being thus engaged, the consideration might procure, and facilitate a full *discovery* of latter *Encroachments*, and fortifie the recovery by favourable *Rents*, *Improvements*, and *Reversions* by *Copy-hold*, or what other *Tenures* and *Services* his *Majesty* shall please to accept of.

6. Now for the Planting of *Woods* in such places (which is the main Design of this whole *Treatise*) the *Hills*, and *rough Grounds*

will do well; but they are the rich fat *Vales*, and *flats* which do best deserve the charge of *walls*; such as that *spot* affords; and the *Haw-thorn* well plash'd (single or double) is a better, and more natural *fence*, than *unmorter'd walls*, could our *industry* arrive to the making of such as we have describ'd: Besides, they are lasting, and profitable; and then one might allow sufficient *Bordure* for a *Mound* of any thickness, which may be the first charge, and well supported, and rewarded by the culture of the Land thus *enclosed*.

7. For *Example*, suppose a man would take *in* 500 *Acres* of good *Land*, let the *Mounds* be of the wildest ground, as fittest for *wood*: Two *hedges* with their *Vallations*, and *Trenches* will be requisite in all the Round; *viz.* one next to the *Enclosure*, the *other* about the *Thicket* to fence it from *Cattle*: This, between the two *hedges* (of whatsoever breadth) is fittest for *Plantation*: In these *Hedges* might be tryed the Plantation of *Stocks*, in the *intervals* all manner of *wood-seeds* sown (after competent Plowings) as *Acorns*, *Mast*, *Fir*, *Pine*, *Nuts*, *&c.* the *first* year chasing away the *Birds*, because of the *Fir* and *Pine* Seeds, for reasons given: the *second* year loosning the ground, and thinning the supernumeraries, *&c.* this is the most frugal way: Or by another *Method*, the *waste* places of *Forests* and *Woods* (which by through experience is known and tried) might be perfectly clensed; and then allowing two or three *Plowings*, well rooted *stocks* be set, cut and trimm'd as is requisite; and that the *Timber-trees* may be excellent, those afterwards *Copsed*, and the choicest *stocks* kept shreaded. If an *Enclosure* be sow'd, the *Seeds* may be (as was directed) of all the *species*, not forgetting the best *Pines*, *Fir*, *&c.* whiles the yearly removal of very incumbrances onely, will repay the *Workmen*, who sell the *Quick*, or reserve it to store other Enclosures, and soften the circumjacent grounds, to the very great improvement of what remains.

8. And how if in such *fencing-works*, we did sometimes imitate what *Quintus Curtius*, *lib.* 6. has Recorded of the *Mardorum gens*, near to the Confines of *Hyrcania*, who did by the close Planting of *Trees* alone upon the Bordures, give so strange a check to the Power of that great Conqueror *Alexander*? They were a *barbarous* People indeed, but in this worthy our imitation; and the Work so handsomly, and particularly describ'd, that I shall not grieve to recite it. *Arbores densæ sunt de industria consitæ, quarum teneros adhuc ramos manu flectunt, quos intortos rursus inserunt terræ: Inde, velut ex alia radice, lætiores virent trunci: hos, qua natura fert, adolescere non sinunt: quippe alium alii, quasi nexu conserunt: qui ubi multa fronde vestiti sunt, operiunt terram. Itaque occulti ramorum velut laquei perpetuâ sepe iter claudunt, &c.* The Trees (*saith he*) were Planted so near and thick together of purpose, that when the boughs were yet young and flexible, bent, and wreath'd within one another, their Tops were bowed into the earth (as we *submerge our* Layers) whence taking fresh roots, they shot up new stems, which not being permitted to grow as of themselves

selves they would have done, they so knit, and perplex'd one within another, that when they were clad with leaves, they even cover'd the ground, and enclosed the whole Country with a kind of living net, and impenetrable hedge, as the *Historian* continues the description; and this is not unlike what I am told is frequently *practis'd* in divers places of *Devon*; where the *Oaks* being planted very neer the foot of those high *Mounds* by which they separate their *Lands*; so *Root* themselves into the *Bank*, that when it fails and crumbles down, the *Fense* continues still maintain'd by them with exceeding profit. Such works as these would become a *Cato*, or *Varro* indeed, one that were *Pater Patriæ*, *non sibi soli natus*, born for Posterity; but we are commonly of another mould,

— & fruges consumere nati.

9. A fair advance for speedy growth, and noble *Trees* (especially for *Walks* and *Avenues*) may be assuredly expected from the *Graffing* of young *Oaks*, and *Elms* with the best of their kinds; and where the goodliest of these *last* are growing, the ground would be *plow'd*, and finely *raked* in the season when the *Scales* fall; that the showres and dews fastning the *Seed* where the wind drives it, it may take *Root*, and hasten (as it will) to a sudden *Tree*; especially, if seasonable *shreading* be appli'd, which has sometimes made them arrive to the height of *Twelve* foot by the first *three* years, after which they grow amain. And if such were planted as *near* to one another as in the *Examples* we have alledg'd, it is almost incredible, what a *paling* they would be to our most expos'd *Plantations*, mounting up their wooden *walls* to the clouds: And indeed the shelving, and natural declivity of the *Ground* more or lesse to our unkind *Aspects*, and bleak *Winds*, does best direct to the *thickning* of these protections; and the benefit of *that*, soon appear, and recompence our industry in the smoothnesse and integrity of the *Plantations* so defended.

10. That great care be had of the *Seeds* which we intend to sow has been already advised; for it has been seen, that *Woods* of the same *age*, planted in the same *soil*, discover a visible difference in the *Timber* and *growth*; and where this variety should happen, if not from the *seed*, will be hard to interpret; therefore, let the *place*, *soil* and *growth* of such *Trees* from whence you have your *seeds*, be diligently examin'd; and why not this, as well as in our care of *Animals* for our breed and store?

11. As to the *Form*, obey the natural *site*, and submit to the several guizes; but ever declining to enclose *High wayes*, and *Common-Roads* as much as possible. For the rest, be pleased to reflect on what we have already said, to encourage the *Planting* of the large spreading *Oak* above all that *species*; the amplitude of the *distance* which they require resign'd to the care of the *Verderer* for grazing *Cattle*, *Deer*, *&c.* and for the great and *masculine* beauty which a wild *Quincunx*, as it were, of such *Trees* would present to your eye.

12. But to advance his *Majesties Forests* to this height of perfection, I should again urge the removal ot some of our most mischievously plac'd *Iron-mills*; if that at least be true which some have affirm'd, that we had better *Iron*, and cheaper from *Forreigners*, when those *works* were strangers amongst us. I am inform'd, that the *New-English* (vvho are novv become very numerous, and hindred in their advance and prospect of the *Continent* by their surfeit of the *Woods* which we want) did about *twelve* years since, begin to clear their *High-ways* by two *Iron-mills*: I am sure their *zeal* has sufficiently wasted our stately *Woods*, and *Steel* in the bowels of their *Mother* old *England*; and 'twere now but expedient, their *Brethren* should hasten thither to supply us with *Iron* for the *peace* of our dayes; whilst his *Majesty* becomes the great *Soveraign* of the *Ocean*, free *Commerce*, *Nemorum Vindex & Instaurator magnus*. This were the onely way to render both our Countries *habitable* indeed, and the fittest *Sacrifice* for the *Royal Oaks*, and their *Hamadryad's* to whom they owe more than a sleight submission: And he that should deeply consider the prodigious *waste* which these voracious *Iron*, and *Glasse-works* have formerly made but in *one County* alone, the *County* of *Sussex*, for 120 *Miles* in length, and *thirty* in breadth (for so wide, and spacious was the antient *Andradswald*, of old one intire *Wood*, but of which there remains now little, or no sign) would be touch'd with no mean *Indignation*: Certainly, the goodly *Rivers* and *Forests* of the other *World*, would much better become our *Iron*, and *Saw-mills*, than these exhausted *Countreys*; and we prove gainers by the timely removal: I have said this already, and I cannot too often *inculcate* it for the Concerns of a *Nation*, whose onely Protection (under *God*) are her *Wooden Walls*.

13. Another thing to be recommended (and which would prove no lesse than *thirty* years, in some places *forty*, and generally *twenty* years *advance*) were a good (if well executed) *Act* to save our *Standards*, and *borduring Trees* from the *Ax* of the Neighbourhood: And who would not preserve *Timber*, when within so few years the *price* is almost quadrupl'd? I assure you *standards* of *twenty*, *thirty*, or *forty* years growth, are of a long day for the Concernments of a *Nation*.

14. And though we have in our general *Chapter* of *Copses*, declar'd what by our *Laws*, and common *usage* is expected at every *Fell* (and which is indeed most requisite, till our store be otherwise suppli'd) yet might much even of that rigor be abated, by no unfrugal permissions to take down more of the *Standards* for the benefit of the *Under-woods* (especially where, by *over dropping*, and *shade* they interrupt the kindly *Dews*, *Rains*, and *Influences* which nourish them) provided that there were a proportionable number of *Timber-trees* duly, and throughly Planted, and preserved in the *Hedge-rows* and *Bordures* of our grounds; in which case, even the total *clearing* of some *Copses* would be to their great advance, as by sad experience has been taught some good *Husbands*,

bands, whose necessities sometimes forced them to violate their *Standards*, and more grown *Trees* during the late *Tyranny*.

15. Nor will it be here unseasonable to advise, that where *Trees* are manifestly perceiv'd to *decay*, they be marked out for the *Ax*, that so the *younger* may come on for a supply; especially, where they are chiefly *Elms*; because their *successors* hasten to their height and perfection in a competent time; but beginning once to grow sick of *Age*, or other infirmity, suddenly impair; and lose much of their value yearly: besides, that the increase of *this*, and other speedy *Timber*, would spare the more *Oak* for *Navigation*, and the sturdier uses.

How goodly a sight were it, if most of the *Demesnes* of our *Countrey Gentlemen* were crown'd and incircl'd with such stately rows of *Limes*, *Firs*, *Elms*, and other ample, shady and venerable *Trees* as adorn *New-Hall* in *Essex*, the Seat of that *Suffolk Knight* neer *Yarmouth*, and our neighbouring Pastures at *Barnes*? Yet were *these* Plantations but of late years in comparison: It were a noble, and immortal *providence* to imitate these good *Husbands* in larger, and more august *Plantations* of such useful *Trees*, for *Timber* and *Fuel*, as well as for *Shade*, and *Ornament* to our Dwellings.

16. But these incomparable undertakings will best of all become the *Inspection* and care of the Honourable *Lieutenants*, and *Rangers*, when they delight themselves as much in the goodlinesse of their *Trees*, as other men generally do in their *Dogs*, and *Horses*, for *Races*, and *Hunting*; neither of which *Recreations* is comparable to that of *Planting*, either for *Virtue*, or *Pleasure*, were things justly consider'd according to their true estimation: Not yet that I am of so *morose* an *humour*, that I reprove any of those noble, and manly *Diversions*, seasonably us'd; but because I would court the *Industry* of *great* and opulent-*persons*, to *profitable*, and permanent *delights*: For, suppose *that* Ambition were chang'd into a laudable *emulation*, who should best, and with most artifice, raise a *Plantation* of *Trees*, that should have all the proper *Ornaments*, and *perfections* their nature is susceptible of, by their direction and encouragement; such as *Ælian* sums up *lib.* 3. *c.* 14. εὐγενῆς αἱ κλάδοι, καὶ ἡ κόμη πολλὴ, &c. kind, and gentle *Limbs*, plenty of large *leaves*, an ample, and fair *body*, profound, or spreading *Roots*, strong against impetuous *Winds* (for so I affect to read it) extensive, and venerable *Shade*, and the like: Methinks there were as much a subject of *Glory* as could be phancied of the kind; and *comparable*, I durst pronounce, *preferrable*, to any of their *Recreations*; and how goodly an *Ornament* to their *Demesnes* and *Dwellings*, let their own *eyes* be the judges.

17. One *Encouragement* more, I would reinforce from an *History* I have read of a certain frugal, and most Industrious *Italian Noble-man*, who, after his *Lady* was brought to Bed of a *Daughter*, considering that *Wood* and *Timber* was a *Revenue* coming on whilst the *Owners* were *asleep*: commanded his *Servants* immediately to Plant

Plant in his *Lands* (which were ample) *Oaks*, *Ashes*, and other profitable, and *Marketable Trees*, to the number of an *Hundred thousand*; as undoubtedly calculating, that *each* of those *Trees*, might be worth *twenty pence*, before his *Daughter* became *Marriageable*, which would amount to 100000 *francs* (which is neer *ten thousand pounds sterling*) intended to be given with his *Daughter* for a *Portion*. This was good *Philosophy*, and such as I am assur'd is frequently practis'd in *Flanders* upon the very same account: Let us see it once take effect amongst our many slothful *Gentry*, who have certainly as large *Demesnes*, and yet are so deficient in that *decent* point of *timely* providing for their numerous *Children*: And those who have *none*, let them the rather *Plant*: *Trees* and *Vegetables* have *perpetuated* some *Names* longer, and better than a *Pedigree* of a numerous *Off-spring*; and it were a pledge of a *Noble Mind*, to *oblige* the future *Age* by our particular *Industry*, and by a long lasting train, with the *living work* of our *own hands*: But I now proceed to more general *Concerns*, in order to the *Quæries*, and first to the *proportion*.

18. It were but just, and infinitely befitting the miserable *needs* of the whole *Nation*, that every *twenty Acres* of *Pasture*, made an allowance for *half* an *Acre* of *Timber*, the *Ground* dug about *Christmas*, casting the *Grassy side* downwards 'till *June*, then *dug* again, and about *November* stir'd afresh, and *sown* with *Mast*, or planted in a *clump*, well preserv'd, and *senc'd* for 14, or 15 years; unless that *Sheep* might haply *Graze* after 4 or 5 years: And where the young *Trees* stand too *thick*, there to *draw*, and *transplant* them in the *Hedge-rows*, which would also prove excellent *shelter* for the *Cattel*: This *Husbandry* would more especially become *Northamptonshire*, *Lincolnshire*, *Cornwall*, and such other of our *Countries* as are the most naked of *Timber*, *Fuel*, *&c.* and unprovided of covert: For it is rightly observ'd, that the most *fruitfull places*, least abound in *wood*, and do most stand in *need* of it.

19. Such as are ready to tell ye their *Lands* are so *wet*, that their *Woods* do not thrive in them; let them be converted to *Pasture*; or bestow the same industry on them which good *husbands* do in *Meadows* by *draining*: It is a *sloathfullnesse* unpardonable; as if the *pains* would not be as fully recompenc'd in the growth of their *Timber*, as in *that* of their *grass*: Where poor hungry *Woods* grow, rich *Corn*, and good *Cattle* would be more plentifully bred; and it were beneficial to convert some *Wood-land* (where the proper vertue is exhausted) to *Pasture* and Tillage; provided, that fresh *land* were improved also to *wood* in recompence, and to balance the other.

20. Where we find *uliginous* and starv'd places (which sometimes obey no Art or Industry to *drain*, and of which our pale and fading *Corn* is a sure indication) we are as it were courted to obey *Nature*, and improve them for the propagation of *Sallyes*, *VVillows*, *Alders*, *Abele*, *Sycomore*, *Aspine*, *Birch*, and the like hasty and profitable growers, by ranging them, casting of *Ditches*, *Trenches*, *&c.* as before has been taught.

21. In

21. In the mean while, 'tis a thing to be deplor'd, that some persons bestow more in *grubbing*, and dressing a few *Acres* which has been excellent *wood*, to convert it into wretched *pasture*, not worth a quarter of what the *Trees* would have yielded, well order'd, and left standing; since it is certain, that *barren land* planted with *wood*, will *treble* the *expence* in a short time. Of this, the *R. Honourable* the *L. Vicount Scudamor* may give fair proof, who having *fell'd* (as I am credibly inform'd) a decay'd *Wood*, intended to be *set* to *Tennants*; but upon second thoughts (and for that his *Lordship* saw it apt to cast *Wood*) enclos'd and preserv'd; it yielded him, before thirty years were expir'd, neer 1000 pound upon *Wood-Falls*, whereas the utmost *Rent* of the whole price of *Land yearly*, was not above 8 pound 10 shillings. The like I am able to confirm by instancing a *noble-Person*, who (a little before our unhappy *Wars*) having sown three or four *Acres* with *Acorns*, the fourth year *transplanted* them which grew too thick all about his *Lord-ship*: These Trees are now of that *stature*, and so likely to prove excellent *Timber*, that they are already judg'd to be almost as much worth as the whole *Demesnes*; and yet they take *off* nothing from other *profits*, having been discreetly dispos'd of at the first *designment*. And supposing the *Longævity* of *Trees* should not extend to the *Periods* we have (upon so good account) produc'd; Yet, neither is their arrival to a very competent *perfection*, so very *discouraging*; since I am credibly inform'd, that several Persons have *built* of *Timber* (and that of *Oak*) which were *Acorns* within this *fourty years*; and I find it credibly reported, that even our famous *Forest* of *Dean*, hath been utterly *wasted* no lesse than *three* several times, within the space of *Nine-hundred years*. The Prince *Elector Frederic* IV, in the *year* 1606. sow'd a part of that most barren *Heath* of *Lambertheim*, with *Acorns* after *plowing*, as I have been inform'd; it is now likely to prove a most goodly *Forest*, though all this while miserably neglected by reason of the *Wars*. For the care of *Planting Trees*, should indeed be recommended to *Princes* and *great* Persons, who have the *Fee* of the *Estate*; *Tennants* upon the *Rack* by reason of the tedious expectation, and jealousie of having their *Lands* enhanc'd, are for the most part averse from this *Husbandry*; so that unless the *Land-Lord* will be at the whole *Charge* of *Planting*, and *Fencing* (without which as good no *Planting*) little is to be expected; and whatsoever is propos'd to them above their usual course, is look'd upon as the *whim* and fancy of *speculative* Persons, which *they* turn into *ridicule* when they are applied to *Action*; and *this*, says an ingenious and excellent *Husband* (whose *Observations* have afforded me no little treasure) might be the reason, why the prime *Writers* of all *Ages*, indeavour'd to involve their *Discourses* with *Allegories*, and *Ænigmatical* termes, to protect them from the contempt, and pollution of the *Vulgar*, which has been of some ill Consequence in *Husbandry*; for that very few *Writers* of Worth, have adventured upon so plain a *Subject*, though doubtlesse to any *Considering Person*, the

the most *Delightful* kind of *Natural Philosophy*, and that which employs the most useful part of the *Mathematics*.

The Right Honourable my Lord *Viscount Mountague* has Planted many thousands of *Oaks*, which I am told, he draws out of *Copses*, big enough to defend themselves; and that with such success, as has exceedingly improv'd his *Possessions*; and it is a worthy *Example*. To conclude, I can shew an *Avenue* Planted to a House standing in a barren *Park*, the Soil a cold *Clay*; it consists totally of *Oaks*, one hundred in number: The *person* who first set them (dying very lately) lived to see them spread their *branches* 123 foot in compasse, which at distance of 24 foot, mingling their shady *tresses* for above 1000 in length, form themselves into one of the most venerable, and stately *Arbor-Walks*, that in my life I ever beheld: This is at *Baynards* in *Surrey*, and belonging to my most honour'd Brother (because a most industrious *Planter* of Wood) *Richard Evelyn* Esq; The Walk is broad 56 foot, and one *Tree* with another containing by estimation *three quarters* of a *load* of *Timber* in each *Tree*, and in their *lops* three *Cord* of fire-wood: Their *Bodies* are not of the tallest, having been *topped* when they were young, to reduce them to an uniform height; yet is the *Timber* most excellent for its scantling, and for their *heads*, few in *England* excelling them: where some of their contemporaries were planted single in the *Park* without cumber, they spread above *fourscore* foot in *arms*.

22. I have produced these *Examples*, because they are *conspicuous*, full of *encouragement*, worthy our *imitation*; and that from *these*, and sundry others which I might enumerate, we have made this Observation, that almost any *Soil* is proper for some profitable *Timber-Trees* or other, which is good for very little else.

23. The bottoms of *Downs*, and like places well *Plow'd*, and *sown* will bear lusty *Timber*, being *broken up*, and let lye till *Midsummer*, and then *stirr'd* again before *sowing* about *November*.

An old, and judicious Planter of *Woods*, prescribes us these *Directions*, for improving of *Sheep-walks*, *Downs*, *Heaths*, *&c.* Suppose, on every such *Walk* on which 500 *Sheep* might be kept, there were Plow'd up twenty *Acres* (*Plow'd* pretty *deep*, that the *Roots* might take hold, and be able to resist the *Winds*) this should be sowed with *Mast* of *Oak*, *Beech*, *Chats* of *Ash*, *Maple-keys*, *Sloes*, *Service-berries*, *Nuts*, *Bullis*, *&c.* bruis'd *Crabs*, and *Haws*; mingled and scatter'd about the sides and ends of the *Ground*, near a *yard* in breadth. On the rest sowe no *Haws*, but some few *Crab-kernells*: Then begin at a *side*, and sowe five *yards* broad, Plowing under the *Mast*, *&c.* very shallow; then leave six yards in breadth, and *sowe*, and *Plow* five *yards* more, and so from side to side; remembring to leave a *yard* and *half* at the last side; let the rest of the *head-lands* lie, till the Remainder of the *Close* be sown in *March* with *Oates*, *&c.* to preserve it from hurt of *Cattel*, and potching the Ground, when the *Spring* is of *two* years growth, *draw* part of it for

for *Quick-sets*; and when the rest of the *Trees* are of six years *shoot*, exhaust it of more; and leave not above *forty* of either side, each row five yards distant; and *here*, and *there* a *Crab stock* to *graff* on, and in the invironing *Hedge* (to be left thick) let each *Tree* stand *four* yards asunder; which if *forty four* were spared, will amount to about 4000 *Trees*: At *twenty* years end stock up 2000 of them, lop a *thousand* more every *ten* years, and reserve the remaining *thousand* for *Timber*: Judge what this may be *worth* in a short time, besides the *Grass*, *&c.* which will grow the first six or seven years, and the benefit of shelter for *Sheep* in ill Weather, when they cannot be *folded*; and the *Pasture* which will be had under the *Trees*, now at eleven yards *interval*, by reason of the *stocking* up those 2000 we mention'd, excepting the *Hedges*; and if in any of these *Places* any considerable *waters* fortune to lye in their bottoms, *Fowl* would abundantly both *breed*, and *harbour* there. These are admirable Directions for *Park-lands* where *shelter* and *Food* is scarcy.

But even this *Improvement* yet does no way reach, what I have met withal in the most accurate, and no lesse laborious Calculation of Captain *Smith* upon this very *Topic*; where he *Demonstratively* asserts, that a *thousand Acres* of *Land*, Planted at *one* foot interval, in 7201 rowes; taking up 51854401 *Plants* of *Oak*, *Ash*, *Chessnut* (or to be *sown*) taking up 17284800 of each *sort*, and fit to be *transplanted* at three years period (if set in good ground) are worth *eighteen pence* the hundred; and there being 345696 hundred, it amounts to no lesse then 25927 *l.* 4 *s.* besides the *Chessnuts*, of which there being 1728480 *l.* (valued at, and worth *half* a *Crown* the *Hundred*) they come to 21606 *l.* and the *total* of all, to 47533 *l.* 4 *s.*

This being made out, consider what an immense sum, *great Trees* would amount to, and in a large quantity of *Land*; such as were worthy a *Royal* undertaking: It is computed, that at *three* foot distance, the first *Felling* (that is, eight, or nine years after their *Planting*) would be worth in *Hoops*, *Poles*, *Firing*, *&c.* 55015 *l.* and the second *Fell*, 28657 *l.* 19 *s.* 5 *d.* And the fourth (which may be about thirty two years from their *Semination*) 90104 *l.* 17 *s.* and so forward.

At *four* foot interval, and *Felling*, according to the same proportion, you may likewise reckon; and in 11 years with three years *Crop* of *Wheat* (sow'd at first between) it will amount to 34001 *l.* 9 *s.* 4 *d.* And the next, very much more; in regard the *Wood* will spring up thicker: So as at the fifth *Fell*, the accompt stands 126992 *l.* 10 *s.* 2 *d.* &c. and at the seventh (whoever lives to it) 200000: And if planted at wider distance, *viz.* 18 *foot* (according to the *Captains* method) at 30, or 40 years growth you may compute them worth 192961 *l.* 6 *s.* And in *seventy* years, 201001; besides the *three* years crop of *Wheat*, in all 410312 *l.* 16 *s.* which at 36 foot interval (accounted the utmost for *Timber*) takes up (for 1000 *Acres*) 40401 *Trees* for the first 100 *years*. Then,

To make *room*, as they grow larger, grubbing up every middle Tree, at 9 *l. per Tree*, 19800 *Trees* amount to 99000 *l.* and the remaining 20601 at 220 years growth, at but 8 *l. per Tree*, comes to 164808 *l.* besides the inferiour *Crop* of *Meadow*, or *Corn* in all this time, sown in the distances; reckoning for three years product 90000 *Bushels* at 5 *s. per Bushel*, which will amount to 22500 *l.* besides the *Straw*, *Chaff*, *&c.* which at 5 *s.* a *load*, and 3 *d.* a *Bush. Chaff*, comes to 2025 *l.* So as the total *Improvement* (besides the 217 years emolument arising from the *Corn*, *Cattel*, *&c.*) amounts to 288333.

And these *Trees* (as well they may) coming to be worth for *Timber*, 20 *l.* an *Oak*; the 20601 *Trees* amount to 412020 *l.* and the total *Improvement* of the 1000 *Acres* (the *Corn* Profits not computed) ascends to 675833 *l.* So as admit there were in all *England* (and which his *Majesty* might easily compasse, even for his own *Proportion*, and for *Posterity*) 20000 *Acres* thus *Planted*, at two foot *diameter* (and as may be presum'd *thirty* foot high, which in 150 years, they might well arrive to) they would be worth 13516660 *l.* an immense and stupendious *Summe*, and an everlasting supply for all the *Uses* both of *Sea* and *Land*: But it is to Captain *Smith's* laborious *Works* (to which I wish all encouragement) that we have the total *Charge* of this noble *Undertaking* from the first *Semination*, to their *maturity*; by which it will be easie to compute what the *Gains* will be for any *greater* or *lesser* quantity.

But now to return to the *Place* of *Planting* (from whence this *Calculation* has more than a little diverted) we shall find, as we said, that even in the most *craggie*, *uneven*, *cold* and exposed places, not fit for *Arable*, as in *Biscay*, *&c.* and in our very *Peaks* of *Derbyshire*, and other *Rockie* places, *Ashes* grow about every *Village*, and we find that *Oak*, *Beech*, *Elm*, and *Ash*, will prosper in the most *flinty Soils*. And it is truly from these *Indications*, more than from any other whatsoever, that a broken, and decaying *Farmer*, is to be distinguish'd from a substantial *Free-holder*, the very *Trees* speaking the *conditions* of the *Master*: Let not then the *Royal Patrimony* bear a *Bankrupts* reproach: But to descend yet lower;

24. Had every *Acre* but *three*, or *four Trees*, and as many of *Fruit* in it as would a little adorn the *Hedge-rows*, the *Improvement* would be of fair advantage in a few years; for it is a shame that *Turnip-planters*, should demolish, and undo *hedge rows* neer *London*, where the *Mounds* and *Fences* are stripp'd naked, to give *Sun* to a few miserable *Roots*, which would thrive altogether as well under them, being skilfully *prun'd* and *lopp'd*: Our *Gard'ners* will not believe me, but I know it to be true, though *Pliny* had not affirm'd it: As for *Elms* (saith he) their *Shade* is so *gentle* and *benigne*, that it nourishes whatsoever grows *under* it: And (*lib* 17. *c.* 22.) it is his opinion of all other *Trees* (very few *excepted*) provided their Branches be par'd away, which being discreetly done, improves the *Timber* as we have already shew'd.

25. Now

25. Now let us *calculate* a little at adventure, and much within what is both *faisible*, and very *possible*; and we shall find, that *four Fruit-trees* in each *Acre* throughout *England*, the product sold but at *six pence* the *Bushel* (but where do we now buy them so *cheap*?) will be worth a *Million* yearly: What then may we reasonably judge of *Timber*, admit but at the *growth* of *four pence* per *Acre* yearly (which is the lowest that can be estimated) it amounting to near *two Millions*? if (as 'tis suppos'd) there may be *five* or *six* and *twenty Millions* of *square Acres* in the *Kingdom* (besides *Fens*, *High-ways*, *Rivers*, *&c.* not counted) and without reckoning *in* the *Mast*, or *loppings*, which whosoever shall *calculate* from the annual *Revenue*, the *Mast* onely of *Westphalia*, a small and wretched Countrey im *Germany*, does yield to that *Prince*, will conclude to be no despicable *Improvement*.

26. In this poor *Territory*, every *Farmer* does by antient *custom*, Plant so many *Oaks* about his *Farm*, as may suffice to feed his *Swine*: To effect this they have been so careful, that when of late years, the *Armies* infested the poor *Countrey*, both *Imperialists*, and *Protestants*; the onely Bishopriek of *Munster* was able to pay *One hundred thousand Crowns per mensem* (which amounts of our *money* to about 25000 *l. sterling*) besides the ordinary *entertainment* of their own *Prince* and *private families*. This being *incredible* to be practis'd in so extream barren a *Countrey*, I thought fit to mention, either to encourage, or reproach us: *General Melander* was wont to say, The good Husbandry of their *Ancestors* had left them this Stock *pro sacra Anchorâ*; considering how the People were afterward reduc'd to live even on their *Trees*, when the *Souldiers* had devour'd their *Hogs*; redeeming themselves from great extreamities, by the *Timber* which they were at last compelled to cut down, and which, had it continu'd, would have prov'd the utter desolation of that whole *Countrey*. I have this *Instance* from my most worthy, and honourable Friend Sir *William Curtius* (his *Majesties Resident* in *Germany*) who receiv'd this *particular* from the mouth of *Melander* himself: In like manner, the *Princes*, and *Freedoms* of *Hesse*, *Saxony*, *Thuringia*, and divers other places *there*, make vast incomes of their *Forest-fruit* (besides the *Timber*) for *Swine* onely. I say then, whosoever shall duly consider *this*, will find *Planting* of *Wood* to be no contemptible *Addition*; besides the *Pasture* much improv'd, the *cooling* of *fat*, and heavy *Cattel*, keeping them from injurious motions, disturbance, and running as they do in *Summer* to find *shelter* from the *heat*, and vexation of *flyes*.

27. But I have done, and it is now time for us to get out of the *Wood*, and to recommend *this*, and all that we have propos'd, to His most *Sacred Majesty*, the Honourable *Parliament*, and to the *Principal Officers*, and *Commissioners* of the *Royal Navy*; that where such *Improvements* may be made, it be *speedily*, and *vigorously* prosecuted; and where any *defects* appear, they may be duly reformed.

28. And what if for this purpose there were yet some additional *Office* Constituted, which should have a more universal *Inspection*, and the charge of all the *Woods* and *Forests* in His *Majesties Dominions*? This might easily be perform'd by *Deputies* in every *County*; Persons judicious, and skilful in *Husbandry*; and who might be repair'd to for advice and direction: And if such there are at present (as indeed our *Laws* seem to provide) that their *Power* be sufficiently *amplified* where any thing appears *deficient*; and as their zeal excited by worthy encouragements, so might neglects be encounter'd by a vigilant and industrious *Cheque*. It should belong to their *Province*, to see that such *Proportions* of *Timber*, *&c.* were *Planted*, and set out upon every hundred, or more of *Acres*, as the Honourable *Commissioners* have suggested; or, as might be thought convenient, the *quality*, and *nature* of the *places* prudently consider'd: It should be their *Office* also, to take notice of the *growth*, and *decay* of *Woods*, and of their *fitness* for publick *uses* and *sale*, and of all these to give *Advertisements*, that all defect in their ill governing may be speedily remedied; and the Superiour *Officer*, or *Surveyor*, should be accomptable to the *Lord Treasurer*, and to the *principal Officers* of his *Majesties* Navy for the time being: And why might not such a *Regulation* be worthy the establishing by some *Solemn*, and publick *Act* of *State*, becoming our glorious *Prince*, SOVEREIGN OF THE SEAS, and his prudent *Senate*, this present *Parliament*?

29. We find in *Aristotles Politics*, the Constitution of *Extraurban Magistrates* to be *Sylvarum Custodes*; and such were the *Consulares Sylvæ*, which the great *Cæsar* himself (even in a time when *Italy* did abound in *Timber*) Instituted; and was one of the very first things which he did, at the *setling* of that vast *Empire*, after the *Civil Wars* had exceedingly wasted the Countrey: *Suetonius* relates it in the Life of *Julius*; and *Peter Crinitus* in his fifth Book *De honesta disciplina*, *c.* 3. gives this reason for it, *Ut materies* (saith he) *non deesset, qua videlicet Navigia publica possent à præfecturis fabrum, confici*: True it is, that this *Office* was sometimes call'd *Provincia minor*; but for the most part, annex'd, and joyn'd to some of the greatest *Consuls* themselves; that facetious *sarcasme* of the *Comœdian* (where *Plautus* names it *Provincia caudicaria*) referring onely to some under *Officer*, subservient to the other: And such a *Charge* is at this day extant amongst the noble *Venetians*, who have near *Trivisi* (besides what they nourish in other *places*) a goodly *Forest* of *Oaks*, preserv'd as a *Jewel*, for the onely *use* of the *Arsenal*, call'd the *Montello*, which is in length *twelve Miles*, large *five*, and near *twenty miles* in compasse; carefully supervised by a certain *Officer*, whom they name *il Capitano*; and we might *Instance* in many other prudent *States*; not to importune you with the expresse *Laws* which *Ancus Martius* the Nephew of *Numa*, and other *Princes* long before *Cæsar*, did ordain for this very purpose; since indeed, the *care* of so publick, and honourable

honourable an *Enterprize* as is this of *Planting*, and *Improving* of *Woods*, is a right *noble*, and *Royal undertaking*; as that of the *Forest* of *Dean*, *&c.* in particular (were it bravely manag'd) an *Imperial design*; and I do pronounce it more worthy of a *Prince*; who truly consults his *glory* in the highest *Interest* of his *Subjects*, than that of gaining *Battels*, or subduing a *Province*: And if in saying so, or any thing else in this rustic *Discourse*, I have us'd the freedom of a plain *Forester*; it is the *Person* you command me to *put on*, and my *plea* is ready,

Δρυὸς παρούσης, πᾶς ἀνὴρ ξυλεύεται.

Præsente Quercu, *ligna quivis colligit.*

for who could have spoken *lesse* upon so ample a *Subject?* and therefore I hope my *zeal* for it in these *Papers*, will (besides your *Injunctions*) excuse the prolixity of this *Digression*, and all other the *Imperfections* of my Services.

Si canimus Sylvas, Sylvæ *sunt* Consule *dignæ.*

CHAP. XXXV.

An *Historical Account* of the *Sacredness*, and *Use* of *standing Groves*, &c.

1. AND thus have we finish'd what we esteemed necessary for the Direction of *Planting*, and the *Culture* of *Trees* and *Woods* in general: whether for the raising of *new*, or preservation of the more *Antient* and venerable *shades*, crowning the brows of lofty *Hills*, or furnishing, and adorning the more fruitful and humble *Plains*; *Groves* and *Forests*, such as were never Prophan'd by the Inhumanity of *Edge-tools*: *Woods*, whose Original are as unknown as the *Arcadians*; like the goodly *Cedars* of *Libanus*, *Psal.* 104. *Arbores Dei* according to the *Hebrew*, for something doubtlesse which they noted in the *Genius* of those *Venerable places* besides their meer bulk and Stature: And verily, I cannot think to have well acquitted my self of this useful *Subject*, till I shall have in some sort vindicated the honour of *Trees*, and *Woods*, by shewing my *Reader* of what Estimation they were of *old* for their *Divine*, as well as *Civil Uses*; at least refresh both *Him*, and my *Self*, with what occurs of *Historical* and Instructive amongst the Learned concerning them.

2. Though

2. Though *Sylva* was the more general *Name*, denoting a large Tract of *Wood*, or *Trees*, the *inciduæ* and *cæduæ*; yet there were several other Titles attributed to greater or lesser assemblies of them: As when they Planted them for Pleasure, and shade onely, they had their *Nemora*; and as we our *Parks*, for the preservation of *Game*, and particularly *Venizon*, *&c.* their *Saltus*, and *Sylva invia*, secluded for the most part from the rest, *&c.* But among *Authours*, we meet with nothing more frequent, and indeed more celebrated, than those *Arboreous* amenities and *Plantations* of *Woods*, which they call'd *Luci*; and which though sometimes we confesse, were restrain'd to certain peculiar places: Yet were they also promiscuously both used, and taken for all that the wide *Forest* comprehends, or can signifie. To dismiss a number of *Critics*, The name *Lucus* is deriv'd by *Quintilian* and others *à minime Lucendo* because of its densitie

——*nullo penetrabilis astro.*

whence *Apuleius* us'd *Lucum sublucidum*; and the *Poets*, *Sublustris umbra*: Others (on the contrary) have taken it for *Light* in the *Masculine*; because *there* they kindled *Fires*, by what accident unknown

—— Whether it were
By Lightning sent from Heaven, or else there
The Salvage-men in mutual Wars and Fight,
Had set the Trees on Fire, their Foes t'affright.

—— *Seu Cœli fulmine missō*
Sive quòd inter se bellum Sylvestria gentes
Hostibus intulerant ignem, formidinis ergo, &c.

Lucret. *l.* 5.

Or whether the *Trees* set Fire on themselves

When clashing boughs thwarting, each other fret. *Mutua dum inter se rami stirpesque terantur.*

For such Accidents, and even the very heat of the *Sun* alone has kindled wonderful *conflagrations*: or happly to consume their *Sacrifices*, we will not much insist: The *Poets* it seems, speaking of *Juno*, would give it quite another original, and tune it to their Songs invoking *Lucina*, whilst the main and principal difference consisted not so much in the *Name*, as the *Use* and *Dedication*, which was for silent, awful and more solemn *Religion*, to which purpose they were chiefly *manu consiti*, such as we have been treating of, *intire*, and never violated with the *Ax*: *Fabius* calls them *Sacros ex Vetustate* venerable for their *Age*; and certain it is, they had of very great *Antiquity* been Consecrated to Holy uses, not onely by Superstitious *Persons* to the Gentile *Deities* and *Heroes*; but the true *God*, by the *Patriarchs* themselves, who *ab initio* (as is presum'd) did frequently retire to such places to serve him in, Compose their *Meditations*, and celebrate Sacred *Mysteries*, *Prayers*, and *Oblations* following the Tradition of the *Gomerites* or Descendants of *Noah* who first Peopl'd *Galata* after the universal *Deluge*. From hence some presume that even the antient *Druids* had their origin: But that *Abraham* might imitate what the most Religious of that *Age* had practis'd before him may not

not be unlikely; for we read he soon Planted himself and Family at the *Quercetum* of *Mambre*, *Gen.* 13. where as *Eusebius*, *Ecc. Hist. l.* 1. *c.* 18. gives us the account, He spread his *Pavilions*, erected an *Altar*, *Offer'd* and perform'd all the Priestly *Rites*; and *there*, to the immortal glory of the *Oak*, or rather *Arboreous Temple*, he entertained *God* himself. *Isidor*, St. *Hierom*, and *Sozomenus* report confidently, that one of the most eminent of those *Trees* remained till the Reign of the great *Constantine*, who Founded a venerable *Chappel* under it; and that both the *Christians*, *Jews*, and *Arabs*, held a solemn *Anniversarie* or *Station* there, and believed that from the very time of *Noah* it had been a Consecrated place: sure we are it was about some such assembly of *Trees*, that *God* was pleas'd first of all to appear to the *Father* of the *Faithful* when he established the *Covenant* with him, and more expressly, when removing thence (upon confirming the League with *Abimelech*, *Gen.* 21. and settling at *Bersheba*) he design'd an expresse place for *Gods* Divine Service: For *there*, says the sacred *Text*, *He Planted a Grove, and called upon the Name of the Lord.* Such another *tuft* we read of (for we must not alwayes restrain it to *one* single *Tree*) when the *Patriarch* came to אֵילוֹן מוֹרֶה *Elon Moreh, ad Convallem illustrium*: But whether that were the same in which the *High-Priest* reposited the famous *Stone* after the Exhortation mention'd *Joshua* 24. 26. we do not contend; under an *Oak* says the *Scripture*, and it grew near the *Sanctuary*, and probably might be that which his *Grand child* Consecrated with the Funeral of his beloved *Rebecca*, *Gen.* 35. For 'tis apparent by the *Context*, that *There*, *God* appeared to him again: So *Grotius* upon the words (*Subter quercum*) *Illam ipsam* (says he) *cujus mentio*, Gen. 35. 4. *in historia Jacobi & Judæ*; and adds, *Is locus in honorem Jacobi diu pro Templo fuit.* That the very *spot* was long after us'd for a *Temple* in honour of him.

3. If we would track the Religious esteem of *Trees* and *Woods*, yet farther in *Holy Writ*, we have that glorious *Vision* of *Moses* in the *fiery Thicket*, and it is not to abuse or violate the *Text*, that *Moncæus* and others, interpret it to have been an *intire Grove*, and not a *single Bush* onely, which he saw as burning, yet unconsum'd. *Puto ego* (says my Authour) *rubi vocabulo non quidem rubum aliquem unicum & solitarium significari, verum rubetum totum, aut potius fruticetum, quomodo de Quercu Mambre pro Querceto toto Docti intelligunt.* Now that they Worshipped in that Place soon after their coming out of *Ægypt*, the following story shews; and the *Feast* of *Tabernacles* had some resemblance of *Patriarchal* Devotion under *Trees*, though but in temporary *Groves* and Shades in manner of *Booths*, yet Celebrated with all the refreshings of the *Forest*; and from the very Infancy of the *World* in which *Adam* was entertain'd in *Paradise*, and *Abraham* (as we noted) receiv'd his Divine Guests, not in his *Tent*, but under a *Tree*, an *Oak*, *Triclinium Angelicum* the Antients Dining-Room; all intelligent persons have imbrac'd the solace of shady *Arbours*, and all devout

Persons

Persons found how naturally they dispose our Spirits to Religious Contemplations: For this, as some conceive, they much affected to Plant their *Trees* in *Circles*, and gave that capacious Form to the first *Temples*, , observ'd not onely of old, but even at this day by the *Jews*, as the most accommodate for their Assemblies; or, as others, because that figure most resembl'd the *Universe*, and the *Heavens*: *Templum à Templando* says a knowing *Critic*, and another, *Templum est nescio quid immane, atque amplum*; such as *Arnobius* speaks of, that had no *Roof* but *Heaven*, till that sumptuous Fabric of *Solomon* was confin'd to *Jerusalem*, and the goodliest *Cedars*, and most costly *Woods* were carried thither to form the Columns, and lay the Rafters; and *then*, and not till then, was it so much as *Schisme* that I can find, to retire to *Groves* for their *Devotion*, or even to *Bethel* it self.

4. In such Recesses were the antient *Oratories* and *Proseuchæ* built even amongst the *Gentiles*, as well as the People of *God* (nor is it alwaies the lesse authentical for having been the guise of *Nations*) hence that of *Philo*, speaking of one who πάσας Ἰουδαίων προσευχὰς ἐκτροπώσας, &c. that had fell'd all the *Trees* about it; and such a place the *Satyrist* means, where he asks, *In qua te quæro proseucha?* because it was the Rendezvous also, where poor People us'd to frequent to beg the Alms of devout and Charitable Persons; and it was esteemed piacular for any to cut down so much as a stick about them, unless it were to build them, when with the *Psalmist*, men had *honour* according to their forwardnesse of repairing the *Houses* of *God* in the Land, upon which account it was lawful to lift up *Axes* against the goodliest *Trees* in the *Forest*; but those zealous dayes are past,

Now Temples shut, and Groves deserted ly,
All Gold adore, and neglect Piety.

Et nunc desertis cessant sacraria Lucis
Aurum omnes victâ, jam Pietate colunt.
Propert.

5. They came afterwards indeed to be abus'd to *Superstition*, but what good, or indifferent thing has not been subject to perversion? It is said in the end of *Isaiah*, *Exprobratur Hebræis quod in Opisthonais Idolorum horti essent in quorum medio februabantur*; but how this is applicable to *Groves* does not appear so fully; though we find them interdicted, *Deut.* 16. 21. *Judg.* 6. 26. 2 *Chron:* 31. 3. *&c.* and forbidden to be Planted neer the *Temple*; and an impure *Grove* on Mount *Libanus* dedicated to *Venus*, was by an Imperial *Edict* of *Constantine* extirpated; but from the *abuse* of the thing to the *non-use*, the *Consequence* is not alwayes valid, and we may note as to this very particular, that where in divers places of *Holy Writ*, the denuntiation against *Groves* is so expres, it is frequently to be taken but *catachrestically*, from the *Wooden Image* or *Statue* call'd by that name, as our Learned *Selden* makes out by sundry Instances in his *Syntagma de Diis Syris*.

The Summe of all is, *Paradise* it self was but a kind of *Nemorous Temple* or sacred *Grove*, Planted by *God* himself, and given to

to *Man*, *tanquam primo sacerdoti*; the Word is עבד which properly signifies to Serve or administer *res divinas*; a place Consecrated for sober Discipline, and to Contemplate those *mysterious* and *Sacramental* Trees which they were not to touch with their hands; and in memory of them, I am inclin'd to believe, Holy Men (as we have shew'd in *Abraham* and others) might Plant and cultivate *Groves*, where they traditionally invok'd the *Deity*; and St. *Hierom*, *Chrysostom*, *Cyprian*, *Augustine*, and other *Fathers* of the *Church* greatly magnified these pious advantages; and *Cajetan* tells us, that from *Isaac* to *Jacob* and their Descendants they followed *Abraham* in this Custome: In such places were the Monuments of their *Saints*, and the Bones of their *Heroes* deposited; for which *David* celebrated the Humanity of the *Galaadites*, In *Nemora Jabes* as the most sacred and inviolable: In such a place did the *Angel* appear to *Gideon*, and in others *Princes* were *Inaugurated*; so *Abimelec*, *Judic.*9. And the *Rabbines* add a reason why they were reputed so Venerable; because more remote from Men and Company, more apt to compose the *Soul* and fit it for divine Actions, and sometimes *Apparitions*, for which the first enclosures were attributed to *Groves*, *Mountains*, *Fountains* of *Water*, and the like solemn objects; as of peculiar Sanctity, and as the old sense of all words denoting *Sanctity* did import separateness and uncommon propriety: See our Learned *Meade*. For though since the *Devils* intrusion into Paradise, even the most holy and devoted Places were not free from his Tentations and ougly Stratagems: Yet we find our Blessed *Saviour* did frequently retire into the Wilderness, as *Elijah* and St. *John* did before him, and divers other Holy men: The reason is obvious, and I shall shew when I come to speak concerning the use of *Gardens* in another *Work* (long since attempted, and now in some forwardness) how the *Air* of such retired places may be assistant and influential for the inciting of Penitential expressions and affections; especially where one may have the additional assistances of solitary *Grotts*, murmuring Streams, and desolate Prospects: I remember that under a *Tree* was the place of that admirable St. *Augustines* solemn *Conversion*, after all his importunate reluctances: I have often thought of it, and it is a *mealting* passage as himself has recorded it, *Con. l.* 8. *c.* 8. and he gives the reason, *Solitudo enim mihi ad negotium flendi aptior suggerebatur*. And that indeed such opportunities were successful for *Recollection*, and to the very reformation of some ingenious Spirits from secular Engagements to excellent and mortifying Purposes, we may find in that wonderful relation of *Pontianus*'s two Friends, great *Courtiers* of the time, as the same Holy *Father* relates it, previous to his own Conversion.

6. We shall now in the next place endevour to shew how this innocent veneration to *Groves* passed from the *People* of *God* to the *Gentiles*, and by what degrees it degenerated into dangerous Superstitions: For the *Devil* was alwayes *Gods* Ape, and did

so ply his *Groves*, *Altars*, and *Sacrifices*, and almost all other Rites belonging to his Worship, that every Green *Tree* was full of his Abominations, and places devoted to his impure Service; *Hi fuêre* (says *Pliny*, speaking of *Groves*) *quondam Numinum templa, &c.* These, were of old the *Temples* of the *Gods*, and after that simple (but antient Custom) men at this day Consecrate the fairest and goodliest *Trees* to some *Deity* or other; nor do we more adore our glittering Shrines of *Gold* and *Ivory*, than the *Groves*, in which with a profound and awful silence, we worship them. For in truth the very *Tree* it self was sometimes *Deified*, and that *Celtic* Statue of *Jupiter* no better than a prodigious tall *Oak*, whence 'tis said the *Chaldean Theologues* deriv'd their superstition towards it; and the *Persians* we read, us'd that *Tree* in all their mysterious *Rites*; so as to some they proceeded to the offering even of humane *Sacrifices*,

Each *Tree* besprinckled was with humane gore. *Omnis & humanis lustrata cruoribus arbor.* Lucan *l.* 3.

Procopius tells us plainly that the *Sclavii* worshipped *Trees* and whole *Forests* of them: See *Jo. Dubravius l.* 1. *Hist. Bohem.* and that formerly the *Gandenses* did the like, *Surius* the *Legendary* 6. *Feb.* reports in the life of S. *Amadus*: So did the *Vandals* says *Albert Crantz*; and even those of *Peru*, as I learn from *Acosta l.* 5. *c.* 11. But one of the first *Idols* which procur'd particular veneration in them was the *Sidonian Ashtaroth* who took her name *à Lucis*, as the *Jupiter* [illegible] amongst the *Rhodians*, the *Nemorensis Diana* or *Arduenna*, and others who had peculiar Worship in the *Groves*; so soon had Men degenerated into this irrational and stupid Devotion, that Arch-*Fanatic Sathan* (who began his pranks in a *Tree*) debauching the Contemplative use of *Groves* and other Solitudes. Nor were the *Heathens* alone in this crime, the *Basilidians* and other *Hæretics* even amongst the *Christians*, did consecrate to the *Woods* and the *Trees* their Serpent-footed and barbarous ABOPAZAX, as it is yet to be seen in some of their *mysterions Talismans* and *Periapta's* which they carried about.

In opere Paschali. But the *Roman* madness (like that which the *Prophet* derides in the *Jews*) was well perstring'd by *Sedulius* and others for imploring these *Stocks* to be propitious to them, as we learn in *Cato de* R. R. *c.* 113. 134. *&c.* And it was not long after, when they were generally Consecrated by *Faunus*, that they boldly set up his *Oracles* and *Responses* in these nemorous places: Hence the Heathen *Chappels* had the name of *Fana*, and from their wild and extravagant Religion, the *Professors* of it *Phanatics*; a name well becoming some of our late *Enthusiasts* amongst us; who, when their *Quaking* fits possesse them, resemble the giddy motion of *Trees*, whose heads are agitated with *every wind of Doctrine.*

7. Here

7. Here we may not omit what Learned men have observ'd concerning the Custome of *Prophets* and Persons inspir'd of *old*, to *sleep* upon the Boughs and branches of *Trees* (I do not mean on the *tops* of them, as the *Salvages* somewhere do in the *Indies* for fear of *Wild Beasts* in the night time) but on *Matrasses* and *Beds* made of their Leaves, *ad Consulendum* to ask advise of *God*. Naturalists tell us, that the *Laurus* and *Agnus Castus* were *Trees* which greatly compos'd the *Phansy*, and did facilitate true *Visions*; and that the *first* was specifically efficacious πρὸς τὸς ἐνθουσιασμὸς (as my Authour expresses it) to Inspire a *Poetical* fury: Such a *Tradition* there goes of *Rebecca* the Wife of *Isaack*, in imitation of her *Father in Law*: The Instance is recited out of an ancient *Ecclesiastical* History by *Abulensis*; and (what I drive at) that from hence the *Delphic Tripos*, the *Dodonæan Oracle* in *Epirus*, and others of that nature had their Originals: At this *decubation* upon *Boughs* the *Satyrist* seems to hint where he introduces the *Gypsies*.

See S. Hier. in Trad. Heb. 3 Reg. c. 4.

——with fear
The poor she *Jew* begs in my Ladies ear,
The *Groves* high *Priestesse*, Heavens true messenger,
Hierusalem's old Lawes expounds to her.
Stapylton.

Arcanam Judæa tremens mendicat in aurem
Interpres Legum Solymarum, & magna Sacerdos
Arboris, ac summi fida internuncia Cœli.
Juv. Sat. 6.

For indeed the *Delphic Oracle* (as *Diodorus l.* 16. tells us) was first made *è Lauri ramis* of the *Branches* of *Laurel* transferr'd from *Thessaly*, bended, and arched over in form of a *Bower* or *Summer-house*; a very simple Fabric you may be sure: And *Cardan*, I remember in his Book *de Fato*, insists very much on the Dreams of *Trees* for portents and presages, and that the use of some of them do dispose men to Visions.

8. From hence then began *Temples* to be erected and sought to in such Places, and as there was hardly a *Grove* without its *Temple*, so had every *Temple* almost, a *Grove* belonging to it, where they plac'd *Idols*, and *Altars* and *Lights* endow'd with fair Revenues which the devotion of Superstitious persons continually augmented; and I remember to have seen something very like this in *Italy*, and other Parts, namely, where the *Images* of the *B. Virgin* and other *Saints* have been enshrin'd in hollow and umbragious *Trees* frequented with much veneration, which puts me in mind of what that great Traveller *Pietro della Valla* relates, where he speaks of an extraordinary *Cypresse*, yet extant, near the Tomb of *Cyrus*, to which at this day many *Pilgrimages* are made; and speaks of a *Gummy* transudation which it yields, that the *Turks* affirm to turn every *Friday* into drops of *Blood*: The *Tree* is hollow within, adorn'd with many *Lamps*, and fitted for an *Oratory*, and indeed some would derive the name *Lucus* a *Grove*, as more particularly to signifie such enormous and cavernous Trees *quod ibi lumina accenderentur Religionis causa*: But our *Author* adds, The *Ethnics* do still repute all great *Trees* to be *divine*, and the habitation of *Souls* departed: These the *Persians* call *Pir*

Vide Annium viterb. l. 17. fol. 158.

and *Imàm*. Perhaps such a hollow *Tree* was that *Asylum* of our Poets *Hero*, when he fled from his burning *Troy*,

—— an antient *Cypresse* near
Kept by Religious Parents many a year.

——*juxtaq; antiqua Cupressus*
Religione Patrum multos servata per annos.
Æn. 2.

For that they were places of Protection, and priviledg'd like *Churches*, and *Altars*, appears out of *Livy* and other good Authority: Thus where they introduce *Romulus* encouraging his new *Colony*,

So soon as ere the *Grove* he had immur'd
Hast hither (says he) *here* you are secur'd.

——*ut saxo Lucum circumdedit alto*
Quilibet, huc, dicit, Confuge, tutus eris.

Such a Sanctuary was the *Aricina*, and Suburban *Diana*, call'd the *Nemorale Templum*, and divers more which we shall reckon up anon.

9. The Mysteries which the famous *Druids* celebrated in their *Woods* and *Forests*, are at large to be found in *Cæsar*, *Pliny*, *Strabo*, *Diodorus*, *Mela*, *Apuleius*, *Ammianus*, *Lucan*, *Aventinus*, and innumerable other Writers, where you will see that they chose the *Woods* and the *Groves*, not onely for all their *Religious* Exercises, but their *Courts* of *Justice*; as the whole Institution and Discipline is recorded by *Cæsar*, *l. 6.* and as he it seems found it in our Countrey of *Britain*, from whence it was afterwards translated into *Gallia*: For he attributes the first rise of it to this *once* happy *Island* of *Groves*, and *Oaks*; and affirms that the antient *Gauls* travelled hither for their initiation. To this *Tacitus* assents, 14 *Annal.* and our most Learned *Critics* who vindicate it both from the *Greeks* and *French*, who frequently challenge it: But the very *Name* it self, which is purely *Celtic*, does best decide the Controversie: For though δρῦς be *Quercus*; yet *Vossius* skilfully proves that the *Druids* were altogether strangers to the *Greeks*; but what comes yet nearer to us, *Dru*, *fides* (as one observes) begetting our now antiquated *Trou*, or *True*, makes our title the stronger: Add to this, that amongst the *Germans* it signified no lesse than *God* it self; and we find *Drutin* or *Trudin* to import *Divine* or *Faithful* in the *Othfridian Gospel*, both of them *Sacerdotal* expressions. But that in this *Island* of ours men should be so extreamly devoted to *Trees*, and especially to the *Oak*, the strength and defence of all our enjoyments, inviron'd as we are by the *Seas*, and Martial Neighbours, is lesse to be wonder'd,

Our Brittish *Druids* not with vain intent,
Or without Providence did the Oke frequent;
That *Albion* did that Tree so much advance
Nor Superstition was, nor ignorance
Those Priests divining even then, bespoke
The mighty Triumphs of the *Royal Oake*.
When the Seas Empire with like boundlesse fame
Victorious CHARLES the Son of CHARLES shall (claim.

Non igitur Dryadæ nostrates pectore vano
Nec sine consulto coluerunt Numine Quercum,
Non illam Albionis jam tum celebravit honore
Stulta Superstitio, venturive inscia secli
Angliaci ingentes puto prævidisse triumphos
Roboris, Imperiumque maris quod maximus olim,
CAROLIDES *vastâ Victor ditione teneret.*

Cowleii L. 6. Pl.

as

as we may find the *Prædiction* gloriously followed by our ingenious *Poet*, where his *Dryad* consignes that Sacred *Depositum* to this *Monarch* of the *Forest* the *Oak*, than which nothing can be more sublime and rapturous.

10. From those *Sylvan Philosophers* and *Divines* (not to speak much of the *Indian Brachmans* descended of the antient *Gymnosophists*) 'tis believed that the great *Pythagoras* might Institute his silent *Monasterie*; and we read that *Plato* entertain'd his Auditors amongst his Walks of *Trees*, which were afterward defac'd by the inhumanity of *Sylla*, when as *Appian* tells us, he cut down those venerable shades to build Forts against *Pyræus*: And another we find he had, Planted near *Anicerides* with his own hands, wherein grew that celebrated *Platanus* under which he introduces his Master *Socrates* discoursing with *Phædon de Pulchro*: Such another place was the *Athenian* Cephisia as *Agellius* describes it: *Democritus* also taught in a *Grove*, as we find in that of *Hippocrates* to *Damagetus*, where there is a particular *Tree* design'd *ad Otium literarum*; and I remember *Tertullian* calls these places *Studia opaca*: I could here tell you of *Palæmon*, *Timon*, *Apollonius*, *Theophrastus*, and many more that erected their Schools in such *Colleges* of *Trees*, but I spare my Reader; I shall onely note that 'tis reported of *Thucydides* that he compiled his noble *History* in the *Scaplan Groves*. as *Pliny* writes; and in that matchless piece *de Oratore*, we shall find the Interlocutors to be often under the *Platanus* in his *Tusculan Villa*, where invited by the freshnesse and sweetnes of the place *Admonuit* (says one of them) *me hæc tua* Platanus *quæ non minus ad opacandum hunc locum patulis & diffusa ramis quam illa, cujus umbram secutus est* Socrates, *quæ mihi videtur non tam ipsa aquula, quæ describitur, quàm* Platonis *oratione crevisse, &c.* as the *Orator* brings it in, in the person of one of that meeting. ad Mart.

I confesse *Quintilian* seems much to question whether such places do not rather perturb and distract from an *Orators* Recollection, and the depths of Contemplation: *Non tamen* (sayes he) *protinus audiendi, qui credunt aptissima in hoc Nemora, sylvasque, quod illa cœli libertas, locorumque amænitas, sublimem animum, & beatiorem spiritum parent: Mihi certè jucundus hic magis; quàm studiorum hortator videtur esse secessus: Namq; illa ipsa quæ delectant, necesse est avocent ab intentione operis destinati:* He proceeds —— *Quare Sylvarum amœnitas, & præter labentia flumina, & inspirantes ramis arborum auræ, volucrúmque cantus & ipsa latè circumspiciendi libertas, ad se trahunt; ut mihi remittere potius voluptas ista videatur cogitationem quam intendere.* But this is onely his singular suffrage, which as conscious of his *Error*, we soon hear him retract, when he is by and by as loud in its Praises, as the *Places* in the World, the best fitted for the diviner *Rhetorique* of *Poetry*: But let us admit another to cast in his *Symbol* for *Groves*: *Nemora* (sayes he) *& Luci, & secretum ipsum, tantam mihi afferunt voluptatem ut inter precipuos Carminum fructus, majorem, quod nec in strepitu, nec sedente* l. 10.

ante

ante hoſtium litigatore, nec inter Sordes & lacrymas reorum comprimantur: Sed ſecedit animus in loca pura, atque innocentia, fruturque ſedibus Sacris.

And indeed the *Poets* thought of no other *Heaven* upon Earth, or elſewhere; for when *Anchiſes* was ſetting forth the felicity of the other life to his Son, the moſt lively deſcription he could make of it was to tell him,

—We dwell in ſhady Groves, —*Lucis habitamus opacis*

and that when *Æneas* had travell'd far to find thoſe happy Abodes,

They came to Groves, of happy Souls the Reſt
To Ever-greens, the dwellings of the Bleſt.

Devenere locos lætos, & amœna virecta
Fortunatorum Nemorum, Sedeſque beatas.

Such a proſpect he gives us of his *Elyſium*; and therefore wiſe and great Perſons had alwayes theſe ſweet opportunities of Receſſe, their *Domos Sylvæ*, as we reed, 2 *Reg.* 7. 2. which were thence called *Houſes of Royal Refreſhment*, or as the *Septuagint* οἶκος δρυμῶν, not much unlike the Lodges in divers of our Noble-mens *Parks*, and *Foreſt-Walks*; which minds me of his choice in another *Poem*,

In lofty Towers let *Pallas* take her reſt,
Whilſt ſhady *Groves* 'boue all things pleaſe us beſt.

——— *Pallas quas condidit arces,*
Ipſa colat, nobis placeant ante omnia Sylvæ.
Eclog. 2.

And for the ſame reaſon *Mecœnas*

—Choſe the broad *Oak*— *Maluit umbroſam Quercum*———

and as *Horace* beſpeaks them,

Me the cool Woods above the reſt advance
Where the rough *Satyrs* with the light Nymphs dance.

——— *Me gelidum nemus*
Nympharumq; leves cum Satyris Chori,
Secernunt populo ———

and *Virgil* again,

Our ſweet *Thalia* loves, nor does ſhe ſcorn
To haunt umbragious Groves ——

Noſtra nec erubuit Sylvas habitare Thalia.

or as *thus* expreſſed by *Petrarch*,

——— The *Muſe* her ſelf injoys
Beſt in the Woods, verſe flies the City noyſe.

Sylva placet Muſis, urbs eſt inimica Poëtis.

So true is that of yet a better *Poet* of our own;

As well might *Corn*, as *Verſe* in Cities grow,
In vain the thankleſſe Glebe we Plow and Sow,
Againſt th' unnatural Soil in vain we ſtrive,
'Tis not a ground in which theſe Plants will thrive.
Cowley.

When

When it seems they will bear nothing but *Nettles*, and *Thorns* of *Satyrs*, 'and as *Juvenal* sayes, by *Indignation* too; and therefore 'almost all the *Poets*, except those who were not able to eat 'Bread without the Bounty of Great men; that is, without what 'they could get by flattering them (which was *Homer*'s and *Pin*-'*dar*'s case) have not onely withdrawn themselves from the Vi-'ces and Vanities of the *great World*, into the innocent felicities 'of *Gardens*, and *Groves*, and *Retiredness*, but have also com-'mended and adorned nothing so much in their never-dying *Po*-'*ems*. Here then is the true *Parnassus*, *Castalia*, and the *Muses*, and at every call in a *Grove* of Venerable *Oaks*, methinks I hear the answer of an hundred old *Druyds*, and the *Bards* of our inspired Ancestors.

Innumerable are the Testimonies I might produce in behalf of *Groves* and *Woods* out of the Poets, *Virgil*, *Gratius*, *Ovid*, *Horace*, *Claudian*, *Statius*, *Silius*, and others of latter times, especially the divine *Petrarch*; were I minded to swell this *Charming* Subject, beyond the limits of a *Chapter*: I think onely to take notice, that *Theatrical* Representations, such as were those of the *Ionian* call'd *Andria*; the *Scenes* of *Pastorals*, and the like innocent Rural Entertainments were of old adorn'd and trimm'd up *è ramis & frondibus*, *cum racemis & corymbis*, and frequently represented in *Groves*, as the Learned *Scaliger* shews: And here the most beloved of *Apollo* rooted his coy *Mistris*, and the noblest Raptures have been conceiv'd in the Walks and shades of Trees, and *Poets* have composed *Verses* which have animated men to Heroic and glorious Actions; here *Orators* (as we shewed) have made their *Panegyrics*, *Historians* grave Relations, and the Profound Philosophers lov'd here to passe their lives in repose and Contemplation, and the frugal Repasts —*molleque sub arbore somni* were the natural and chast delights of our *Fore-Fathers*. *Poetic. l. 1. c. 21.*

12. Nor were *Groves* thus onely frequented by the great *Scholars*, and the great *Wits*, but by the greatest *Statesmen* and *Politians* also; and the *Athenians* were wont to Consult of their gravest matters and Publick Concernments in them. Famous for these *Assemblies* were the *Ceraunian*, and at *Rome* the *Lucus Petilinus*, the *Farentinus*, and others, in which there was held that renowned *Parliament* after the Defeat of the *Gaules* by *M. Popilio*: For 'twas supposed that in places so Sacred, they would Faithfully and Religiously observe what was Concluded amongst them.

In such green Palaces the first Kings reign'd,
Slept in their Shades, and Angels entertain'd:
With such old Counsellors they did advise,
And by frequenting Sacred Groves, grew Wise;
Free from th' impediments of Light and Noyse,
Man thus retir'd, his nobler thoughts imploys.

Mr. *Waller*.

As our excellent *Poet* has describ'd it: and amongst other weighty matters they treated of *Matches* for their *Children*, and the Young people made *Love* in the cooler Shades, and ingrav'd their *Mistris's* Names upon the Bark, *tituli æreis literis insculpti* as *Pliny* speaks of that Antient *Vatican Ilex*, and *Euripides* in *Hippolyto*; where he shews us how they made the incision, whisper their soft Complaints like that of *Aristænetus* Τοῖα δὲ εἶδε ἃ δένδρα, &c. and wish that it had but a Soul and a Voyce to tell *Cydippe*, the fair *Cydippe*, how she was belov'd: And doubtlesse this *Character* was Antienter than that in *Paper*; let us hear the Amorous *Poet* leaving his young Couple thus Courting each other.

L. 1. c. 44. *Arist. l. Ep.* 10.

Vide Symmach. l. 4. *Ep.* 28.

My name on Bark engraven by your fair hand,
Oenone, there, cut by your knife does stand;
And with the Stock my Name alike do's grow,
Be't so, and my advancing honour show.

Inciſæ ſervant a te mea nomina fagi
Et Legor Oenone falce notata tua,
Et quantum trunci, tantum mea nomina creſcunt,
Creſcite, & in titulos ſurgite rite meos.
Ovid. Ep.

which doubtlesse he learnt of *Maro* describing the unfortunate *Gallus*.

There on the tender bark to carve my Love;
And as they grow, so shall my hopes improve.
Ogilby.

——— *teneriſque meos incidere amores*
Arboribus: Creſcentillæ, creſcetis amores.
Eclog. 10.

and these pretty Monuments of Courtship I find were much used on the *Cherry-tree* (the *Wild one* I suppose) which has a very smooth *Rind*, as the witty *Calfurnius*,

Repeat, thy words on Cherry-bark I'll take,
And that red skin my Table-book will make.

Dic age, nam Ceraſi tua cortice verba notabo
Et deciſa feram rutilanti carmina libro.

I omit *Olympius Nemesianus*, and others, for we have dwelt too long on this trifle, but we will now change the *Scene* as the *Ægyptians* did the mirth of their *Guests* when they serv'd in a *Scull* to make them more serious. For,

13. Amongst other Uses of *Groves*, I read that some Nations were wont to hang, not Malefactors onely, but their departed Friends, and those whom they most esteemed upon *Trees*, as so much nearer to *Heaven*, and dedicated to *God*; believing it far more honourable than to be buried in the *Earth*; and that some affected to repose rather in these Woody places *Propertius* seems to bespeak.

The Gods forbid my Bones in the high-Road
Should lye, by every wandring vulgar trod;
Thus buried Lovers are to scorn expos'd,
My Tomb in some by Arbor be inclos'd.

Di faciant mea ne terrâ locet oſſa frequenti
Quâ facit aſſiduo tramite vulgus iter,
Poſt mortem tumuli ſic infamantur amantum,
Me tegat arboreâ devia terra comâ.

The same is affirmed of other *Septentrional* People by *Chr. Cilicus de Bello Dithmarsico l.* 1. We have already mention'd *Rebeccah*, and read of *Kings* themselves that honoured such places with their *Sepulchres*: What else should be the meaning of 1 *Chro.*

10.

10. 12. when the valiant men of *Jabesh* interr'd the Bones of *Saul* and *Jonathan* under the *Oke*. Famous was the *Hyrnethian Cæmeterie* where *Daiphon* lay; *Ariadnes* Tomb was in the *Amathusian* Grove in *Crete*, now *Candie*: For they believed that the Spirits and *Ghosts* of Men delighted to expatiate and appear in such solemn places, as the Learned *Grotius* notes from *Theophylact*, speaking of the *Dæmons*, upon *Mat.* 8 20. for which cause *Plato* gave permission, that *Trees* might be Planted over *Graves*, to obumbrate and refresh them.

Our Blessed *Saviour* chose the *Garden* sometimes for his *Oratory*, and dying, for the place of his *Sepulchre*; and we do avouch for many weighty causes, that there are none more fit to bury our Dead in, than in our *Gardens* and *Groves*, where our *Beds* may be decked with verdant and fragrant *Flowers*, *Trees* and *Perennial* Plants, the most natural and instructive *Hieroglyphics* of our expected *Resurrection* and Immortality; besides what they might conduce to the Meditation of the *living*, and the taking off our Cogitations from dwelling too intently upon more vain and sensual Objects; that *Custom* of *Burying* in *Churches*, and near about them (especially in great and populous *Cities*) being both a Novel Presumption, undecent, and very unhealthful.

14. To make this *Discourse* the more absolute, we shall add a short recital of the most famous *Groves* which we find Celebrated in *Histories*; and those, besides many already mention'd, were such as being Consecrated both to *Gods* and *Men*, bore their Names: Amongst these are reckoned the Sacred to *Minerva*, *Isis*, *Latona*, *Cybele*, *Osiris*, *Æsculapius*, *Diana*, and especially the *Aricinian*, in which there was a goodly *Temple* erected, placed in the midst of an *Island*, with a vast *Lake* about it, a *Mount*, and a *Grotto* adorn'd with *Statues*, and irrigated with plentiful Streams: and this was that renouned Recesse of *Numa*, where he so frequently conversed with his *Ægeria*, as did *Minos* in the *Cave* of *Jupiter*, and by whose pretended Inspirations they gain'd the deceived People, and made them receive what *Lawes* he pleas'd to impose upon them. To these we may joyn, the *Groves* of *Vulcan*, *Venus*, and the little *Cupid*: *Mars*, *Bellona*, *Bacchus*, *Sylvanus*, the *Muses*, and that neer *Helicon* from the same *Numa*, their great *Patron*; and hence had they their Name *Camœnæ*. In this was the noble *Statue* of *Eupheme* Nurse to those *Poetical* Ladies; but so the *Feranian* and even *Mons Parnassus*, were thick shaded with *Trees*. Nor may we omit the more impure *Lupercal Groves* Sacred, or Prophan'd rather, yet most famous for their affording shelter and foster to *Romulus*, and his Brother *Rhemus*.

That of *Vulcan* was usually guarded by *Dogs*, like the Town of S. *Malos* in *Bretaigne*: The *Pinea Sylva* appertain'd to the *Mother* of the *Gods*, as we find in *Virgil*. *Venus* had several *Groves* in *Ægypt*, and in the *Gnidian* Island, where once stood those famous *Statues* cut by *Praxiteles*; another in *Pontus*, where (if

you'll believe it) hung up the *Golden Fleece* for the bold Adventurer. Nor was the Watry-King *Neptune* without his *Groves*, the *Helicean* in *Greece* was his: So *Ceres*, and *Proserpine*, *Pluto*, *Vesta*, *Castor* and *Pollux* had such shady Places Consecrated to them; add to these the *Lebadian*, *Arsinoan*, *Paphian*, *Senonian*, and such as were in general dedicated to all the *Gods*.

——The Gods have dwelt in Groves. ——*Habitarunt dii quoque Sylvas.*

And these were as it were *Pantheons*. To the memory of famous *Men* and *Heros* were Consecrated the *Achillean*, *Aglauran*, and those to *Bellerophon*, *Hector*, *Alexander*, and to others who disdained not to derive their Names from *Trees* and *Forests*; as *Sylvius* the *Posthumus* of *Æneas*; divers of the *Albanian* Princes, and great Persons; *Stolon*, *Laura*, *Daphnis*, *&c.* And a certain Custom there was for the *Parents* to Plant a *Tree* at the *Birth* of an *Heir* or *Son*, presaging by the growth and thriving of the *Tree* the prosperity of the *Child*: Thus we read in the life of *Virgil*, and how far his *Natalitial Poplar* had out-strip'd the rest of its Contemporaries. And the reason doubtlesse of all this was, the general repute of the Sanctity of those Places; for no sooner does the *Poët* speak of a *Grove*, but immediately some Consecration follows, as believing that out of those shady Profundities some *Deity* must needs emerge,

Quo possis viso dicere Numen *inest.*

so as *Tacitus* (speaking of the *Germans*) sayes, *Lucos & Nemora consecrant, Deorumque nominibus appellant secretum illud, quod sola reverentia vident*; and the Consecration of these *Nemorous* places we find in *Quintus Curtius*, and in what *Paulus Diaconus de Lege* relates of the *Longobards* where the *Rites* are expresse, allur'd as 'tis likely by the gloominesse of the *Shade*, procerity and altitude of the *Stem*, floridnesse of the *leaves* and other accidents, not capable of Philosophising on the *Physical* Causes, which they deem'd supernatural, and plainly *divine*; so as to use the words of *Prudentius*,

Here all Religion paid; whose dark Recesse
A sacred awe does on their mind impresse,
To their Wild Gods——

Quos penes omne sacrum est, quicquid formido tremendum
Suaserit horrificos, quos prodigialia cogunt
Monstra Deos——
L. 2. Cont. Sym.

And this *deification* of their *Trees*, and amongst other things, for their *Age* and perennial viridity, sayes *Diodorus*, might spring from the manifold *use* which they afforded, and happly had been taught them by the *Gods*, or rather by some *God-like* persons, whom for their worth and the publick benefit they esteemed so; and that divers of them were voyc'd to have been *Metamorphoz'd* from

from *Men* into *Trees*, and again out of *Trees* into *Men*, as the *Arcadians* gloried in their *Birth*, when

Out of the teeming Bark of Oakes men burst. — *Génsque virûm, truncis, & rupto robore nati.*

which perhaps they fancied, by seeing men creep sometimes out of their Cavities, in which they often lodg'd and secur'd themselves;

For in th' Earths non-age under Heavens new frame,
They stricter liv'd, who from Oaks rupture came.
Stapylton.

Quippe aliter tunc orbe novo cœlóque recenti
Vivebant homines qui rupto robore nati, &c.
Juven. l. 2. *S.* 6.

Or as the sweet *Papinius*,

Fame goes that thou brake forth from the hard rind,
When the new earth with the first feet was sign'd?
Fields yet nor Houses doleful pangs reliev'd
But shady Ash the numerous births receiv'd,
And the green Babe drop'd from the pregnant Elm,
Whom strange amazement first did over-whelm
At break of day, and when the gloomy night
Ravish'd the Sun from their pursuing sight,
Gave it for lost——

—— *Nemorum vos stirpe rigenti*
--Fama satos, cum prima pedum vestigia tellus
Admirata tulit, nondum arva, domúsque ferebant
Cruda puerperia, ac populos umbrosa creavit,
Fraxinus, & fœtâ viridis puer excidit Orno:
Hi Lucis stupuisse vices, noctísque feruntur,
Nubila, & occiduum Longe Titana secuti
Desperâsse diem ——

almost like that which *Rinaldo* saw in the Inchanted *Forest*.

An aged Oak beside him cleft and rent,
And from his fertile hollow womb forth went
(Clad in rare weeds, and strange habilement)
A full grown Nymph. ——

Quercia gli appar, che per se stessa incisa
Apre feconda il cavo ventre, e figlia:
E n' esce fuor vestita in strania guisa
Ninfa d' età cresciuta. ——

Canto 18.

And that every great *Tree* included a certain tutelar *Genius* or *Nymph* living and dying with it, the *Poets* are full; a special instance we have in that prodigious *Oak* which fell by the fatal stroke of *Erisichthon*; but the *Hamadryads* it seems were immortal, and had power to remove, and change their wooden habitations.

15. We might here produce wonderful strange *Apparitions* of this nature, interceding for the standing, and life of *Trees*, when the *Ax* has been ready for Execution, as you may see in that *Hymn* of *Callimachus*, *Pausanias*, and the famous story of *Paræbius* related by *Apollonius* in 2. *Argonaut.* with the fearful *Catastrophe* of such as causelessly and wantonly violated those goodly *Plantations* (from which *fables* arose, *that* of the *Dodonean* and *vocal Forests*, frequent in *Heathen* Writers) but by none so Elegantly as the witty *Ovid*, describing the Fact of the wicked *Erisichthon*. *In Phoe. & Arcad.*

—Who Gods despis'd,
Nor ever on their Altars sacrific'd,
Who *Ceres* Groves with steel prophan'd: Where stood
An old huge *Oak*; even of it self a Wood.

—Qui numina divûm
Sperneret, & nullos aris adoleret
(honores &c.

Wreaths, Ribands, grateful Tables deckt his boughs
And ſacred Stem; the Dues of powerful Vows.
Full oft the *Dryades*, with Chaplets crown'd,
Danc't in the ſhade; full oft they tript a Round
About his bole. Five Cubits three times told
His ample Circuit hardly could infold.
Whoſe ſtature other Trees as far exceeds,
As other Trees ſurmount the humble Weeds.
Yet this his Fury rather did provoke:
Who bids his Servants fell the Sacred *Oak*;
And ſnatches, while they paus'd, an *Ax* from one;
Thus ſtorming: Not the *Goddeſſe* lov'd alone;
But, though this were the *Goddeſſe*, ſhe ſhould down,
And ſweep the Earth with her aſpiring Crown.
As he advanc'd his Arms to ſtrike, the *Oak*
Both ſigh'd and trembl'd at the threatning ſtroke.
His Leaves and Acorns, pale together grew,
And colour-changing-branches ſweat cold deaw:
Then wounded by his impious hand, the Blood
Guſh'd from th' inciſion in a purple flood:
Much like a mighty *Ox*, that falls before
The Sacred Altar, ſprouting ſtreams of gore.
On All amazement ſeiz'd: When One of all
The Crime deters, nor would his *Ax* let fall.
Contracting his ſtern brows; Receive, ſaid he,
Thy Pieties Reward; and from the Tree
The ſtroke converting, lops his Head; then ſtrake
The *Oak* again; from whence a Voyce thus ſpake:
A *Nymph* am I, within this Tree inſhrin'd,
Belov'd of *Ceres*, O prophane of mind,
Vengeance is near thee: With my parting breath,
I Prophecy, a Comfort to my Death.
He ſtill his guilt purſues; who over-throws
With Cables, and innumerable blows
The ſturdy *Oak*; which nodding, long, down ruſh'd,
And in his lofty fall his fellows cruſh'd.

Sandys.

But a ſad *Revenge* follows it, as the *Poet* will tell you; and one might fill a juſt *Volume* with the *Hiſtories* of *Groves* that were violated by wicked Men, who came to fatal periods.

It is reported that the *Minturenſian Grove* was eſteem'd ſo venerable, that a ſtranger might not be admitted into it; and the great *Xerxes* himſelf when he paſſed through *Achaia*, would not touch a *Grove* which was dedicated to *Jupiter*, Commanding his Army to do it no Violence, and the honours he did to one ſingle (but a goodly) *Platanus* we have already mention'd. The like to this we find when the *Perſians* were put to flight by *Pauſanias*; though they might have ſav'd their lives by it, as appears

in

in the Story. The same reverence made that *Hercules* would not so much as taste the *Waters* of the *Ægerian Groves* after he slew *Cacus*, though extreamly *thirsty*.

——— The Priestesse se'd
(A purple Fillet binding her gray head)
Stranger, pry not, but quit this shady Seat,
Avant, and whiles thou safely may, Retreat,
To men forbid, and by hard Sanction bound:
Far better other Springs were by you found.

Puniceo canas flumine vincta comas,
Parce oculis hospes, Lucóque abscede verendo
Cede agedum, & tuta limina linque fuga,
Interdicta viris, metuenda lege piatur
Di tibi dent alios fontes ———

Propert. l. 4.

Nor indeed in such places was it lawful to *Hunt*, unless it were to kill for *Sacrifice*, as we read in *Arrianus*; whence 'tis reported by *Strabo*, that in the *Ætolian Groves* Sacred to *Diana*, the *Beasts* were so tame, that the very *Wolves* and *Staggs* fed together like *Lambs*, and would follow a man licking his hands, and fauning on him. Such a *Grove* was the *Crotonian*, in which *Livy* writes, there was a spacious Field stor'd with all sorts of *Game*. There were many *Forests* consecrated to *Jupiter*, *Juno*, and *Apollo*; especially the famous *Epidaphnes* near the *Syrian Antioch*, which was most incomparably pleasant, adorn'd with *Fountains* and rare *Statues*. There was to be seen the *Laurel* which had been his chast *Mistris*, and in the Center of it his *Temple* and *Asylum*: Here it was *Cosroes* and *Julian* did Sacrifice upon several occasions as *Eusebius* relates, but could not with all their impious *Arts* obtain an *Answer*; because the holy *Babylas* had been interr'd near that *Oracle*, for which it was reputed so venerable, that there remained an expresse *Title* in the *Code de Cupressis ex Luco Daphnes non excidendis, vel venundandis*, that none should either *fell*, or *sell* any of the *Trees* about it, which may serve for another Instance of their *Burying* in such places. The truth is, so exceedingly *Superstitious* they were and tender, that there was almost no medling with these devoted *Trees*, and even before they did but *conlucare* and prune one of them, they were first to *Sacrifice*, least they might offend in something ignorantly: But to *Cut down* was *Capital*, and never to be done away with any *Offering* whatsoever; and therefore *Conlucare* in *Authours* is not (as some pretend) *Succidere*, but to *prune* the Branches onely, and yet even *this* gentle tonsure of superfluities was reputed a kind of Contamination; and hence *Lucus cõinquinari dicitur*, unless in the case of *Lightning* when *Cælo tacti*, a whole Tree might quite be fell'd, as mark'd by *Heaven* for the Fire. But of this sufficient: We could indeed fill many sheets with the *Catastrophe* of such as maliciously destroy'd *Groves* to feed either their revenge or avarice: See *Plutarch* in *Pericles*, and the saying of *Pompeius*: *Cicero* sharply reproves *G. Gabinius* for his prodigious spoil in *Greece*, and it was of late dayes held a piece of *Inhumanity* in *Charles* the *French* King, when he entred the *Frisons* after he had slain their *Leader*, to cut down their *Woods*, a punishment never inflicted by sober Princes but to prevent *Idolatry* in the Old *Law*; and to shew the heinousnesse

Salmut. exer. Plin. Solin.

ness of disloyalty and *Treason* by latter *Sanctions*, in which case, and for *Terror*, even a *Traitors* Woods have become *Anathema*, as were easie to instance out of *Histories*.

16. But what shall we say then of our late prodigious *Spoilers*, whose furious devastation of so many goodly *Woods* and *Forests*, have bequeath'd an Infamy on their *Names* and *Memories* not quickly to be forgotten! I mean our unhappy *Usurpers*, and injurious *Sequestrators*; not here to mention the deplorable necessities of a Gallant and Loyal *Gentry*, who for their *Compositions* were (many of them) compell'd to add yet to this *Wast*, by an inhumane and unparallel'd *Tyrannie* over them, to preserve the poor remainder of their *Fortunes*, and to find them *Bread*.

Nor was it here they desisted, when, after the Fate of that once beautiful *Grove* under *Greenwich-Castle*, the Royal *Walk* of *Elms* in St. *James's Park*,

That living Galery of aged Trees,

was once propos'd to the late *Council* of *State* (as they call'd it) to be cut down and sold, that with the rest of his *Majesties* Houses already demolished, and mark'd out for Destruction, his *Trees* might likewise undergo the same destiny, and no footsteps of *Monarchy* remain unviolated.

17. It is from hence you may calculate what were the *designs* of those excellent *Reformers*, and the care these great *States-men* took for the preservation of their *Country*, when being *Parties* in the *Booty* themselves, they gave way to so dishonourable and impolitic a *Wast* of that *Material*, which being left intire, or husbanded with discretion, had prov'd the best support and defence of it. But this (say they) was the Effect of *War*, and in the height of our *Contentions*. No, it was a *late* and cold *deliberation*, and long after all had been subdu'd to them; nor could the most implacable of *Enemies* have expres'd a Resolution more barbarous.

We have spoken of the great *Xerxes*, that passing Conquerour through *Achaia*, he would not suffer his *Army* to violate so much as a *Tree* of his *Adversaries*; and have sufficiently observed from the *Antients*, that the *Gods* did never permit them to escape unpunish'd who were injurious to *Groves*. What became of *Agamemnon's* Host after his Spoyl of the *Woods* at *Aulis*? Histories tell us *Cleomenes* died mad: The *Temesæan Genius* became proverbial; and the destructive fact that the inraged *Cæsar* perpetrated on the *Massilian* Trees, went not long unreveng'd, *thus* related by the *Poet*, and an illustrious *Record* of all we have hitherto produc'd, to assert their Veneration.

Lucus erat longo nunquam violatus ab ævo, &c.

Lucan. *l.* 3.

A Wood untouch'd of old was growing there
Of thick-set Trees, whose boughs spreading and fair
Meeting, obscured the inclosed *Air*,

And

And made dark shades exiling *Phœbus* Rayes :
There no rude Fawn, nor wanton Sylvan playes;
No Nymph disports, but cruel Deities
Claim barbarous Rites, and bloody Sacrifice :
Each Tree defil'd with humane blood; if we
Believe Traditions of Antiquity :
No Bird dares light upon those hollowed boughs,
No Beasts make there their dens; no wind there blows;
No lightning falls : a sad religious awe,
The quiet Trees unstirr'd by wind do draw.
Black water Currents from dark Fountains flow :
The Gods unpolish'd Images do know
No art, but plain, and formlesse trunks they are.
Their mosse and mouldinesse procures a fear :
The common figures of known Deities
Are not so fear'd : not knowing what God 'tis,
Makes him more awfull : by relation
The shaken Earths dark caverns oft did grone :
Fall'n *Yew-trees* often of themselves would rise:
With seeming fire oft flam'd th'unburned Trees :
And winding dragons the cold *Oaks* embrace,
None give neer worship to that baleful place;
The People leave it to the Gods alone.
When black night reigns, or *Phœbus* gilds the Noon,
The Priest, himself trembles, afraid to spy
In th'awful Woods its Guardian-Deity.

But now *Erisichthon*-like, and like him in *Punishment*; for *his* was Hunger, *Cæsars* Thirst, and thirst of Humane *Blood*, reveng'd soon after in his *Own*.

The *Wood* he bids them fell, not standing far
From all their Work: untoucht in former War,
Among the other bared Hills it stands
Of a thick growth; the Souldiers valiant hands
Trembled to strike, mov'd with the Majestie,
And think the *Ax* from off the Sacred Tree
Rebounding back, would their own bodies wound:
Th' amazement of his Men when *Cæsar* found;
In his bold hand himself an *Hatchet* took,
And first of all assaults a lofty *Oak*,
And having wounded the Religious Tree,
Let no man fear to fell this Wood (quoth he)
The guilt of this Offence let *Cæsar* bear. *&c.*

May.

and so he did soon after, carrying to the Grave ('tis thought) the *Maledictions* of the incensed *Gauls* to his Funeral-pile,

——For who
The Gods thus injur'd, unreveng'd does go?

——*Quis enim læsos impune putaret*
Esse Deos——

18. But

18. But least this be charg'd with *Superstition*, because the *Instances* are *Heathen*: It was a more noble and remarkable, as well as recent *Example*, when at the *Siege* of *Breda*, the late Famous General *Spinola* Commanded his *Army* not to violate a *Tree* of a certain *Wood* belonging to the *Prince* of *Orange* there, though a reputed *Traytor*, and in open defiance with his Master. In sum, we read, that when *Mithridates* but deliberated about the cutting down of some stately *Trees* which grew near *Patara*, a *City* of *Lycia*, though necessitated to it for the building of Warlike *Engines* with them, being terrifi'd in a *Vision*, he desisted from his purpose. It were to be wish'd *these*, or the like *Examples*, might have wrought some *Effects* upon the Sacrilegious *Purchasers*, and disloyal *Invaders* in this Iron-Age amongst us, who have lately made so prodigious a spoyl of those goodly *Forests*, *Woods*, and *Trees* (to gratifie an impious and unworthy *Avarice*) which being once the Treasure and Ornament of this *Nation*, were doubtlesse reserved by our more prudent *Ancestors* for the repairs of our floating *Castles*, the *safeguard* and *boast* of this renowned *Island*, when *Necessity*, or some imminent Peril should threaten it, or call for their Assistance; and not to be devoured by these improvident *Wretches*, who, to their eternal Reproach, did (with the *Royal Patrimony*) swallow likewise *Gods own Inheritance*; but whose *Sons* and *Nephews* we have liv'd to see hastily disgorge them again; and with it all the rest of their Holy *Purchases*, which otherwise they might securely have enjoy'd. But this, *in terrorem* onely, and for Caution to *Posterity*, whiles we leave the *Guilty*, and those who have done the Mischiefs; to their proper *Scorpions*, and to their *Erisichthonian*-fate, or that of the inexorable *Parœbius*, the vengeance of the *Dryads*, and to their *Tutelar* better *Genius*, if any yet remain, who love the solid *Honour* and *Ornament* of their *Countrey*: For what could I say lesse, Πλουτυνὺς, and * *Wood-born* as I am, in behalf of those *Sacred Shades*, which both grace our *Habitations*, and Protect our *Nation*?

Qua tibi factorum pœnas instare tuorum Vaticinor —— *Vide Met. l. 8. Apollon. l. 2. Argonaut. Prosternit quercum funestam quam sibi Nympha pignoribusque suis fecit* ——

* At *Weoton* in *Surrey*: For so in all ages from *Trees* have been denominated whole Countreys, Regions, Cities and Towns; as *Cyparissa* in *Greece*, *Cerasus* in *Pontus*, *Laurentum* in *Italy*, *Myrrhinus* in *Attica*. Ports, Mountains and eminent Places; as the *Viminalis*, *Æsculetum*, &c. The reason is obvious, from the spontaneous growth and abounding of such *Trees* in the respective Soyles.

19. But I acknowledge how easie it is to be *lost* in this *Wood*, and that I have hardly power to take off my *Pen* whilst I am on this delightful *Subject*: For what more august, more charming and useful, than the *culture* and *preservation* of such goodly Plantations.

That shade to our Grand-Children give. —— *Seris factura nepotibus umbram.*

and afford so sweet, and so agreeable refreshment to our Industrious *Wood-man*.

When He, his wearied Limbs had laid,
Under a florid *Platani* Shade.

Cùm posti labores sub Platano cubat
Virentis umbra —— Claud.

Or

Or some other goodly spreading *Trees*, such as we told you stopt the *Legions* of a proud *Conquerour*, and that the wise *Socrates* sware by: That *Passenius Crispus* did *Sacrifice* to, and the honours of his Gods.

20. But, whilst we condemn this *Excesse* in them; *Christians*, and true *Philosophers* may be instructed to make *use* of these *Enjoyments* to better purposes, by contemplating the *Miracles* of their Production and structure: And what *Mortal* is there so perfect an *Atomist*, who will undertake to detect the *thousandth* part, or *poynt* of so exile a *Grain*; as that insensible rudiment, or rather *halituous spirit*, which brings forth the lofty *Firr-Tree*, and the spreading *Oake*? That *Trees* of so enormous an height and magnitude, as we find some *Elmes*, *Planes*, and *Cypresses*; some hard as *Iron*, and solid as *Marble* (for such the *Indies* furnish many) should be swadl'd and involv'd within so small a dimension (if a *poynt* may be said to have any) without the least luxation, confusion or disorder of Parts, and in so weak and feeble a substance; being at first but a kind of tender *mucilage*, or rather rotteness, which so easily dissolves and corrupts *Substances* so much *harder*, when they are buried in the moist Womb of the *Earth*, whilst *this* tender, and flexible as it is, shall be able in time to displace and rent in sunder whole *Rocks* of stones, and sometimes to cleave them beyond the force of *Iron Wedges*, so as even to remove *Mountains*? For thus no *Weights* are observ'd able to suppress the victorious *Palm*; And thus, our *Tree* (like *Man* whose inverted *Symbol* he is) being sown in *corruption*, rises in *glory*, by little and little ascending into an hard erect *Stem* of comely dimensions, into a solid *Tower* as it were; and that which but lately a single *Ant*, would easily have born to his little *Cavern*, now capable of resisting the fury, and braving the Rage of the most impetuous *storms*, *Magni mehercle artificis, clausisse totum in tam exiguo* (to use *Seneca*'s expression) *& horror est considerantî.* *Epist.* 53.

21. Contemplate we again, What it is which begins this motion or *flame*, causing it first to *radiate* in the *Earth*, and then to display its Top in the *Ayre*, so different *Poles* (as I may call them) in such different *Mediums*? How it elects, and then intro-sumes its proper *food*, and gives *suck*, as it were, to its yet tender *Infant*, till it have strength and force to prey on, and digest the more solid *Juices* of the Earth; for then, and not 'till then, do the *Roots* begin to harden: Consider how it *assimilates*, *separates*, and *distributes* these several supplies; how it *concocts*, *transmutes*, *augments*, *produces* and *nourishes* without separation of *Excrements* (at least to us visible) and *generates* its like, without violation of *Virginity*: By what exquisite *percolations*, and *fermentations* it proceeds; for the *Heart*, *Fibers*, *Veins*, *Rind*, *Branches*, *Leaves*, *Blossoms*, *Fruit*; for the *strength*, *Colour*, *Taste*, *Odour* and other stupendious *Qualities*, and distinct *Faculties*, some of them so repugnant and contrary to others; yet in so uniform, and successive a *Series*, and all this perform'd in the dark, and those secret Recesses of *Nature*. *Quid*

Foliorum describam diversitates? What shall we say of the *Mysterious* forms, *variety*, and *variegation* of the *Leaves* and *Flowers*, contriv'd with such *Art*, yet without *Art*; some *round*, others *long*, *Oval*, *Multangular*, *indented*, *crisped*, *rough*, *smooth* and *polished*, *soft* and *flexible* at every tremulous blast, as if it would drop in a moment, and yet so obstinately adhering, as to be able to contest against the fiercest *Winds*, that prostrate mighty Structures, raising *Hurrocanes*, the violence whereof whole *Fleets* and *Countries* do often feel; yet I say, continually making War, and sometimes joyning Forces with steeming showers, against the poor *Leaf*, tyed on by a slender *stalk*; there it abides 'till *God* bids it fall: For so the *wise Disposer* of Things has plac't it, not only for *Ornament*, but *use* and *protection* both of *Body* and *Fruit*, from the excessive *heat* of *Summer*, and *colds* even of the sharpest *Winters*, and their immediate impressions; as we find it in all such *Places* and *Trees*, as like the *blessed* and *good man*, have alwayes *Fruit* upon them, ripe, or preparing to mature; such as the *Pine*, *Fir*, *Arbutus*, *Orange* and most of those which the *Indies* and more *Southern* Tracts plentifully abound in; where *Nature* provides this continual shelter, and clothes them with perennial Garments.

22. Let us again examine with what care the *Seeds*, those little *Souls* of Plants, *Quorum exilitas* (as one sayes) *vix locum inveniat* (in which the whole and compleat *Tree*; though invisible to our dull sense, is yet perfectly and intirely wrapp'd up) are preserv'd from *avolation*, diminution and detriment; expos'd, as they seem to be, to all those accidents of *Weather*, *storms* and *rapacious* Birds, in their spinic, arm'd and compacted *Receptacles*; where they sleep as in their *Causes*, 'till their Prisons let them gently fall into the embraces of the *Earth*, now made pregnant with the *Season*, and ready for another *Burthen*: For at the time of *Year* she fails not to bring them forth; and with what delight have I beheld this tender and innumerable Off-spring *repullulating* at the *Feet* of an aged *Tree!* from whence the *Suckers* are drawn, transplanted and educated by humane *Industry*; and forgetting the *ferity* of their *Nature*, become *civiliz'd* to all his *Employments*.

23. Can we look on the prodigious quantity of *Liquor*, which one poor wounded *Birch* will produce in a few *hours*, and not be astonish'd how some *Trees* should in so short a space, *Weep* more than they weigh? and that so dry, so feeble and wretched a *branch* as that which bears the *Grape*, should yield a *Juice* that *Cheers both God and Man?* That the *Pine*, *Fir*, *Larch*, and other *Resinous Trees*, Planted in such rude, and uncultivated places, amongst *Rocks* and dry *Pumices*, should transude into *Terpentine*, and pearl out into *Gums*, and pretious *Balms?*

24. There are ten Thousand Considerations more, besides that of their *Medicinal* and *Sanative* properties, and the *Mechanical Uses* mention'd in this *Treatise*, which a *Contemplative* Person may derive from the *Groves* and the *Woods*; all of them the Subject of *Wonder*; And though he had onely the *Palm* or the *Cocco*, which furnishes

furnishes a great Part of the *World* with all that even a *Voluptuous* Man can need, or almost desire, it were sufficient to employ his *Meditations* and his *Hands*, as long as he had to live, though his *years* were as many as the most aged *Oak*: But a *Wise*, and a *Thinking Man* can need none of these *Topics*, in every *Hedge*, and every *Field* they are before him; and yet we do not admire them, because they are Common, and obvious: Thus we fall into the just *reproach* given by one of the *Philosophers* (introduc'd by the *Orator*) to those who slighted what they saw *every-day*, because *they every-day saw them*; *Quasi Novitas nos magis quàm magnitudo rerum, debeat ad exquirendas causas excitare*: As if *Novelty* onely should be of more force to ingage our enquiry into the *Causes* of Things, than the *Worth* and *Magnitude* of the *Things* themselves. *Cic. de Nat. Deor. L. 2.*

Resonate montes Laudationem, SYLVA, *Et omne* Lignum *ejus*. *Isa. 44. 23.*

FINIS.

POMONA,

OR AN

APPENDIX

CONCERNING

FRUIT-TREES,

In relation to

CIDER,

The *Making*, and several ways of *Ordering* it.

VIRG. Eclog. ix.

——*Carpent tua Poma nepotes.*



LONDON,

Printed by *John Martyn* and *James Allestry*, Printers to the *Royal Society*. MDCLXX.

To the Right Honourable

THOMAS

Earl of *SOUTHAMPTON*,

Lord HIGH TREASURER

OF

ENGLAND, &c.

My Lord,

IF great *Examples* did not ſupport it, the dignity and greatneſs of your *Perſon* would ſoon have given cheque to this preſumption: But ſince *Emperours* and *Kings* have not only gratefully accepted *Works* of this nature, but honor'd them likewiſe with their own ſacred hands, that *Name* of yours, (which ought indeed never to appear but on Inſtruments of *State* and fronts of *Marble*, conſecrating your *Wiſdom* and *Vertues* to *Eternity*) will be no way leſſen'd by giving Patronage to theſe appendant *Ruſticities*. It is from the Protection and Cheriſhment of ſuch as your *Lordſhip* is, that theſe *Endeavours* of ours may hope one day to ſucceed and be proſperous. The nobleſt and moſt uſeful Structures have laid their Foundations in the *Earth*: if that prove firm *here* (and *firm* I pronounce it to be, if your *Lordſhip* favour it) We ſhall go on and flouriſh. I ſpeak now in relation to the *Royal Society*, not my ſelf, who am but a *Servant* of it only, and a *Pioner* in the *Works*. But be its *fate* what it will, Your *Lordſhip*, who is a *Builder*, and a lover of all *Magnificences*, cannot be diſpleas'd at theſe agreeable Acceſ-

ſories

sories of *Planting*, and of *Gard'ning*. But, my *Lord*, I pretend by it yet some farther service to the *State* than that of meerly *profit*, if in contributing to your divertisement I provide for the *Publick health*, which is so precious and necessary to it in your excellent *Person*. Vouchsafe *POMONA* your *Lordships* hand to kiss, and the humble *Presenter* of these *Papers* the honour of being esteem'd,

My Lord,

Your most humble, and most

obedient *Servant*

J. EVELYN.

POMONA,

Or An Appendix Concerning

FRUIT-TREES,

In relation to

CIDER:

The Making, and several ways of Ordering it.

THE PREFACE.

SAt Quercus *was the* Proverb; *and it is now time to walk out of the* Woods *into the* Fields *a little, and to consider what Advancement may be* there *likewise made by the planting of* FRUIT-TREES. *For after the* Earth *is duly cultivated, and pregnant with a Crop of* Grain; *it is only by the Furniture of such* Trees *as bear* Fruit, *that it becomes capable of any farther* Improvement. *If then by discovering how* this *may best be effected I can but raise a worthy emulation in our* Country-men; *this addition of noble* Ornament, *as well as of* Wealth *and* Pleasure, Food *and* Wine, *may* (*I presume*) *obtain some grateful admittance amongst all Promoters of Industry.*

Αλις δρυς. in eos, qui relicto victu sordido, ad elegantiorem lautioremq; digrediuntur.

But before I proceed, I must, and do ingenuously acknowledge, that I present my Reader *here with very little of my* own, *save the pains of* collecting *and* digesting *a few dispers'd* Notes (*but such as are to me exceedingly precious*) *which I have receiv'd*; some *from worthy, and most experienc'd* * Friends *of mine*; *and* others, *from the well-furnish'd* Registers, *and* Cimelia *of the* ROYAL SOCIETY. *Especially, those* Aphorisms, *and* Treatises *relating to the* History *of* Cider, *which by expres's commands they have been pleas'd to injoyn I should publish with my* Sylva.

* Especially, from the most excellently learned Dr. *Beale* of *Teavil* in *Somerset-shire*, a Member of the Royal Society.

It is little more than an Age, *since* Hops (*rather a* Medical, *than* Alimental *Vegetable*) *transmuted our wholesome* Ale *into* Beer; *which doubtless much alter'd our* Constitutions: That *one* Ingredient (*by some not unworthily suspected*) *preserving* Drink *indeed, and so by custom made agreeable*; *yet repaying the pleasure with tormenting Diseases, and a shorter life, may deservedly abate our fondness to it*; *especially, if with* this *be consider'd likewise, the* casualties *in planting it, as seldom succeeding more than* once *in* three *years*; *yet requiring constant charge and culture*; *Besides that it is none of the least devourers of young* Timber.

And what if a like care, *or indeed one quarter of it, were* (*for the future*) *converted to the propagation of* Fruit-trees, *in all parts of this* Nation, *as it is already in* some, *for the benefit of* Cider? (*one* Shire

alone

alone within twenty *miles compass, making no less,* yearly, *than* Fifty thousand Hogsheads) *the* commutation *would* (*I perswade my self*) *rob us of no great Advantage; but present us with one of the most delicious and wholesom* Beverages *in the World.*

It was by the plain Industry *of one* Harris (*a* Fruiterer *to King* Henry *the* Eighth) *that the* Fields, *and* Environs *of about thirty* Towns, *in* Kent *only, were planted with* Fruit, *to the universal benefit, and general Improvement of that* County *to this day; as by the noble example of my Lord* Scudamor, *and of some other publick-spirited* Gentlemen *in those parts, all* Herefordshire *is become, in a manner, but one intire* Orchard: *And when his* Majesty *shall once be pleas'd, to command the* Planting *but of some* Acres, *for the best* Cider-fruit, *at every of his Royal* Mansions, *amongst other of his most laudable* Magnificences; Noblemen, wealthy Purchasers, *and* Citizens *will* (*doubtless*) *follow the* Example, *till the preference of* Cider, *wholesom, and more natural* Drinks, *do quite vanquish* Hopps, *and banish all other* Drogues *of that nature.*

But this Improvement (*say some*) *would be generally obstructed by the* Tenant, *and* High-shoon-men, *who are all for the* present profit; *their expectations seldom holding out above a year or two at most.*

To this 'tis answer'd; That therefore should the Lord *of the* Mannour *not only encourage the* Work *by his own* Example, *and by the Applause of such* Tenants *as can be courted to* delight *in these kinds of* Improvements; *but should also oblige them by* Covenants *to* plant *certain* Proportions *of them, and to* preserve *them being planted.*

To fortifie this profitable Design, *It were farther to be desir'd, that* (*if already there be not* effectual provision *for it, which wants only due* execution *and* quickning) *an* Act *of* Parliament *might be procur'd for the Setting but of two or three* Trees *in every* Acre *of Land that shall hereafter be enclosed, under the Forfeiture of Six-pence* per *Tree, for some* publick *and* charitable Work, *to be levy'd on the* Defaulters. *To what an innumerable multitude would* this, *in few years, insensibly mount; affording infinite proportions, and variety of* Fruit *throughout the* Nation, *which now takes a* Potion *for a refreshment, and drinks its very* Bread-corn!

I have seen a Calculation *of twenty* Fruit-trees *to every* Five-*pounds of yearly Rent; forty to* Ten; *sixty to* Fifteen; *eighty to* Twenty; *and so according to the proportion. Had all our* Commons, *and* Waste-lands *one* Fruit-tree *but at every* hundred foot *distance, planted, and fenc'd at the publick charge, for the benefit of the* Poor, (*whatever might dy and miscarry*) *enough would escape able to maintain a* Stock, *which would afford them a most incredible relief. And the* Hedg-rows, *and the* Champion-grounds, Land-divisions, Mounds, *and* Head-lands (*where the* Plough *not coming, 'tis ever abandon'd to* VVeeds *and* Briars) *would add yet considerably to these* Advantages, *without detriment to any man.*

As touching the Species, *if much have been said to the preference of the* Red-strake *before other* Cider-Apples, *this is to be added; That as the best* Vines, *of richest* liquor, *and greatest* burden, *do not spend much in* wood *and unprofitable* branches; *so nor does this* Tree: *for though other* Cider *may seem more pleasant* (*since we decline to give* Judgment *of what is unknown to us*) *we yet attain our purpose, if* This *shall appear*

best

best to reward the Planter, *of any in present practise; especially, for the* generality; *because it will fit the most* parts *which are addicted to these* Liquors, *but miss of the right* kinds, *and prove the most secure from external injuries and Invaders.*

But not to refine any farther upon the rare effects of Cider, *which is above all the most eminent, soberly to exhilerate the* Spirits *of its* Hypocondriacal Islanders, *and by a* specific quality *to chase away that unsociable* Spleen, *without excess; we must not forget that the very* Blossom *of the* Fruit *perfumes, and purifies the Ambient* Air, *which (as D^r* Beal *well observes in his* Hereford-shire Orchards) *is conceiv'd conduces so much to the constant* Health *and* Longævity, *for which that* Country *has been always celebrated, fencing their* Habitations *and sweet* Receſſes *from* Winds, *and* Winter-*invasions, the heat of the* Sun, *and his unsufferable darts:* And if (*saith he*) we may acknowledge grateful *trifles*, for that they harbour a constant *Aviary* of sweet *Singers*, which are *here* retain'd without the charge of *Italian* wires: *To which I cannot but add his following option*, That if at any time we are in danger of being hindred from *Trade* in Forreign *Countries*, our *English* indignation may scorn to feed at their *Tables*, to drink of their *Liquors*, or otherwise to borrow or buy of *Them*, or of any their *Confederates*, so long as our *Native Soyl* does supply us with such excellent Necessaries. Hereford sh. Orch. p. 8.

Nor do we produce these Instances *to redeem the* Liquor *from the* superstition, prejudice, *and* opinions *of those* Men *who so much magnifie the* juice *of the* Grape *above it: But we will here add some* Experiments *from undenyable success (in spite of* Vintners, *and* Bauds *to mens* Palats) *were they sufficient to convince us, and reclaim the* vitiated; *or that it were possible to dispute of the* pleasantness, riches, *and* præcedency *of* Drinks *and* Diets, *and so to provide for fit, competent, and impartial* Judges; *when by* Nature, Nation, *or* Climate (*as well as by* Custom *and* Education) *we differ in those Extreams.*

Most parts of Africa *and* Asia *prefer* Coffee *before our Noblest Liquors*; India, *the* Roots *and* Plants *before our best Cook'd* Venison; *Almost all the World* crude water, *before our Country* Ale *and* Beer; *and we* English *being generally more for* insipid, luscious, *or* gross *Diet, than for the* spicy, poignant, oylie, *and highly* relish'd, (*witness our universal hatred of* Oyls, French-wine, *or* Rhenish *without* Sugar; *our doating on* Currans, Figgs, Plum-pottage, Pies, Pudding, Cake, *&c.*) *renders yet the difficulty more arduous. But to make good the* Experiment

About thirty years since one M. Taylor (*a person well known in* Hereford-shire) *challeng'd a* London-Vintner (*finding him in the* Country) *That he would produce a* Cider *which should excel his best* Spanish *or* French-wine: *The* Wager *being deposited,* He *brings in a good* Red-strake *to a private House: On that* Scene, *all the* Vintner *could call to be* Judges *pronounce against his* Wine; *Nor would any man there drink* French-wine (*without the help of* Sugar) *nor endure* Sack *for a full draught; and to those who were not accustomed to either, the more racy* Canaries *were no more agreeable than* Malaga, *too luscious for the repetition. But this* Wager *being lost, our* Vintner *renews his* Chartel, *upon these expres terms, of Competent and Indifferent* Arbitrators: *The* Gentle-

man *agrees to the Articles*; *and* thus *again after mutual engagements it must be debated who were Competent* Judges, *and absolutely Indifferent. M.* Taylor *proposes* Three, *whereof the* odd Number *should by* Vote *determine: They must be of the fittest* Ages *too, or rather the fittest of all* Ages, *and such as were inur'd neither to* Cider *nor any* Wine; *and so it was agreed. The* Judges *convene*; viz. *A* Youth *of ten years old, a* Man *of thirty, and a* Third *of sixty*; *and by* All these *also our* Vintner *lost the Battel. But this is not enough*; *'Tis assay'd again by Nine* Judges, *the* Ternary *thrice over*; *and* there *'tis lost also: To* this *we could add another, even of the* Cider *of* Ledbury (*which is not yet the* best *of* Herefordshire) *which, when an experienced* London-Vintner *had tasted, he wish'd had been* Poyson; *for that if it were* known *where he dwelt, it would utterly undo his* Trade. *And here I will conclude*; *for I think never was fairer* Duel; *nor can more be reasonably pretended to vindicate this* Blessing *of* God, *and our Native* Liquor *from their contempt, and to engage our* Propagators *of it.*

Tot veneficiis placere cogitur, & miramur noxium esse Vinum? Plin. As 'tis most ingeniously cited by Dr *Charleton*, in his excellent Discourse of the *Adulterations of Wine*, entered into the Register of the *Royal Society*; and (with those other most useful *Pieces* subjoin'd) worthy to be published, &c. See *Regist. Ro. Society, Num.* 2. 17. *Decemb.* 28. *Jan.* 1662. *pag.* 67, 116. &c.

To sum up all: If Health *be more precious than* Opinion, *I wish our Admirers of* Wines, *to the prejudice of* Cider, *beheld but the* Cheat *themselves*; *the* Sophistications, Transformations, Transmutations, Adulterations, Bastardizings, Brewings, Trickings, *not to say, even* Arsenical Compassings *of this Sophisticated* God *they adore*; *and that they had as true an* Inspection *into those* Arcana Lucifera, *which the* Priests *of his* Temples (*our* Vintners *in their* Taverns) *do practise*; *and then let them drink freely that will*; Ἀγαθὸν μὲν ὕδωρ: -----Give me good *Cider.*

It is noted in our Aphorisms *how much this* Beverage *was esteemed by His late* Majesty, *and* Court, *and there referr'd to all the* Gentry *of the invironing* Country, (*no strangers to the best* VVines) *when for several* Summers *in the* City *of* Hereford (*so encompass'd with store of it, and brought thither without* charge, *or extraordinary* subductions) *it was sold for* six-pence *the* VVine-Quart, *not for the* scarcity, *but the* excellency *of it: And for the* Red-strake, *that it has been seen* there *hundreds of times* (*with vehement and engaged competition*) *compar'd with the* Cider *of other the most celebrated Fruit, when after a while of vapour, no man stood for any other* Liquor *in comparison.*

But it is from these Instances (*may some say*) *when the* VVorld *shall have multiplied* Cider-Trees, *that it will be time enough to give* Instructions *for the right* Pressing *and* Preserving *of the* Liquor. *The Objection is fair: But there are already more* Persons *better furnish'd with* Fruit, *than with* Directions *how to* use *it as they should*; *when in plentiful years so much* Cider *is impair'd by the ignorant* handling, *and becomes dead and sowr, that many even surfeit with the* Blessing; *it being rarely seen in most* Countries, *that any remains good, to supply the defects of another year*; *and the* Royal Society *would prevent all this hazard by this free Anticipation. And yet when all this is said, we undertake not to divine what excellent* Cider *other* soils *may bear*; *nor do we positively extol the* Red-strake *farther than the bounds and confines of* Herefordshire, *for the* Experiments *we have produc'd*; *but because there are doubtless many such* soils *sparsedly throughout this* Nation; *why should it not incite our* Industry *to its utmost* effort, *and*

the

the commendable emulation of endeavouring to raise a yet kindlier Cider-fruit *if it be possible, and which may prove in it self as good, and as agreeable to the* Soil *where we plant it? And certainly, much of this may fairly be expected, from the Trials, Culture, and Propagation of* Kernel-Fruits *of innumerable sorts, and from hopeful* VVildings, *and the* peculiarity *of Grounds.*

It now remains, that I should make some Apology *for my self, to extenuate the tumultuary* Method *of the ensuing* Periods. *Indeed it was not intended for a queint or elaborate piece of* Art; *nor is it the design of the* Royal Society *to accumulate* Repetitions *when they can be avoided; and therefore in an* Argument *so much beaten as is that of dressing the* Seminary, Planting, *and modes of* Graffing, *it has been with Industry avoided; such rude, and imperfect* draughts *being far better in their esteem (and according to my Lord* Bacon's*) than such as are adorn'd with more* pomp, *and ostentous* circumstances, *for a pretence to* Perfection. *The Time may come when the* richness, *and* fullness *of their* Collections *may worthily invite some more Industrious* Person *to accomplish that* History *of* Agriculture, *of which these* Pieces (*like the limbs of* Hippolitus) *are but* scattered parts: *And it is their greatest ambition for the* Publique Good, *to provide such* Materials, *as may serve to* Raise, *and* Beautifie *that most desirable* Structure.

EVELYN.

POMONA:

POMONA.

CHAP. I.

Of the Seminary.

WE had not the leaſt intention to enlarge upon this *Title*, after we had well reflected on the many and accurate Directions which are already publiſhed, as well in our *French-Gardiner*, as in ſundry other *Treatiſes* of that nature, had not a moſt worthy *Member* of the *Royal Society* (to whom we have infinite Obligations) furniſhed us with ſome things very *particular* and *remarkable*, in order to the *improvement* of our *Seminaries*, *Stocks*, &c. which are indeed the very *Baſis* and *Foundation* of *Cider-Orchards*. It is from thoſe precious *papers* of *his*, and of ſome *others* (whoſe Obſervations alſo have richly contributed to this *Enterprize*) that we ſhall chiefly entertain our *Planter* in moſt of the following Periods.

Dr. Beale *of* Yeavil *in* Somerſetſhire.

Whoſoever expects from the *kernel* of a rich or peculiar *Apple* or *Pear* to raiſe *Fruit* of the *ſame kind*, is likely to find many obſtructions and diſappointments: For the *Wilding*, (*Crab* or *Pear*) *Pomus Sylveſtris*, being at the beſt the natural product of the ſoundeſt *kernel* in the firmeſt land, and therefore the guſt of the *Fruit* more ſtrongly auſtere, fierce, and ſharp, and alſo the *Fruit* leſs and more woody; and the pleaſanter or plumper and larger *Apple* being the effect of ſome inteneration, which inclines to a kind of rebatement of the natural ſtrength of the Tree; the beſt choice of *kernels* for *Stocks* indefinitely, (and on which we may graff what we pleaſe) ſhould be from the ſoundeſt *Wilding*. For,

A *kernel* taken from any *graffed-Apple*, as *Pepin*, *Pear-main*, &c. does moſt naturally propend to the wildneſs of the *Stock* on which 'twas inſerted, as being the natural mother of the *kernel*, which is the very heart of the *Apple*; and alſo from a more deep and ſecret *Reaſon*, to be hereafter unfolded.

Apples and *Pears* requiring rather a vulgar and ordinary *Field-land*, than a rich *Garden-mould*, (as has been often ſeen to ſucceed by frequent Obſervations) it has been found that *kernels* ſowed in a very high *compoſt*, and rank earth, have produced (*large* indeed) but *inſipid* Fruit, haſtily rotting on the Trees, before all the parts of it were mature. *Vid. Aphor.* 33.

And ſometimes when they ſeemed in outward *figure* to bear the ſhape of graffed *Apples*, from whence the *kernels* came, yet the guſt did utterly deceive, wanting that vivacity and pungent agreeableneſs.

If

If the *kernels* of natural *Apples* (or of *ungraffed Trees*) should produce the same, or some other variety of *Apples*, (as sometimes it succeeds) yet would this care be seldom *operæ pretium*, and at best but a work of *Chance*, the disappointment falling out so often through the fickleness of the *Soil*: Or admit *that* the most proper and constant, yet would the very *dews* and *rain*, by various and mutable Seasons, and even by the *Air* it self, (which operates beyond vulgar perception, in the very changes as well of the *mould*, as of the *seeds* and *fruit*) create almost infinite alterations: And the choice having been in all places (apparently for some *thousands* of years) by propagating the most delicate of *Fruits* by the *Graffs*, 'tis almost a desperate task to attempt the raising of the *like*, or *better* Fruit from the rudiments of the *Kernel*.

Yet since our design of relieving the want of *Wine*, by a *Succedaneum* of *Cider*, (as lately improv'd) is a kind of *Modern Invention*, We may encourage and commend their patience and diligence who endeavour to raise several kinds of *Wildings* for the tryal of that excellent Liquor; especially since by late experience we have found, that *Wildings* are the more proper *Cider-Fruits*; some of them growing more speedily, bearing sooner, more constantly, and in greater abundance in leaner Land, much fuller of *juice*, and that more masculine, and of a more *Winy* vigour.

Thus the famous *Red strake* of *Hereford-shire* is a pure *Wilding*, and within the memory of some now living firnamed the *Scudamores Crab*, and then not much known save in the *Neighbourhood*, &c. Yet now it would be difficult to shew that *Red-strake* which grew from a *kernel* in that whole *Tract*, all being since become *graffed* Trees. Thus 'tis also believed, That the *Bromsbury Crab* (which carries the fame in some parts of *Glocester-shire*) and many of the White *Musts*, and Green *Musts*, are originally *Savages*; as now in *Somerset-shire* they have a generous *Cider* made of promiscuous *kernels*, or *ungraffed* Trees, which fills their confidence that no other *Cider* does exceed it; and 'tis indeed strong, and of a generous vigour.

Nor dare we positively deny, but that even the best of our *Table fruit* came also originally from the *kernel*: For it is truly noted by my L. *Bacon*, *That the* Fruit *does generally obey the* Graff, *and yields very little to the* Stock; yet some little it does.

The famous *Bezy de Hery*, an excellent Musky *Pear*, was brought into the best *Orchards* of *France* from a *Forest* in *Bretainy*, where it grew *wild*, and was but of late taken notice of.

But now to the deep *Reason* we lately threatned: We have by an Experiment found some neer affinity between the *Kernel* of the *Apple* and the *heart* or interiour of the *Stock*: *For I saw* (says Dr. *Beale*) *an old rotten* Kernel-Tree *bearing a delicate* Summer-fruit, *yielding store of smooth* Cider, (*'tis call'd the* French-Kernel-Tree, *and is also a* Dwarf, *as is the* Red-strake;) *and examining divers* Kernels, *many years successively, of that hollow and decayed Tree, I found them always very small of growth, and empty, meer skins of* Kernels, *not unlike to the emasculated* Scrotum *of an* Eunuch; *another*

ther younger Tree, issuing from the sounder part of a Root *of the same old Tree, had full and entire* Kernels.

And from some such Observation might the production of *Berberies*, &c. without *Stones*, be happily attempted; an *Instrument* fitted to take out the *marrow* or *pith* of the *Branches*, (as the same Dr *Beale* perform'd it;) for from the *numerical* Bush of that *Fruit* he found *some* Branches produce *Berberies* that had no stones, *others* which had; and in searching for the *cause* of the *effect*, perceived, that the pith or heart was taken from the *radicat*, or main Branches, as the other was full of pith, and consequently the fruit in perfection; of all which (he writes me word) he made several tryals on other fruit, but left the place before he could see the event. But he adds;

These many years (almost twenty) *I have yearly tri'd* Kernels in *Beds of clean* Earth, Pots, *and* Pans, *and by the very* leaves (*as they appear'd in first springing for one moneth*) *I could discern how far my* Essays *had* civiliz'd *'em: The* Wilder *had shorter, stiffer, brown, or fox-colour'd leaves, The more* ingenuous *had more tender, more spreading leaves; and approaching the lighter verdure of the* Berbery *leaf when it first appears.* He adds,

Some Apples *are call'd* Rose-Apples, Rosemary-Apples, Gilly-flower-Apples, Orange-Apples, *with several other adjuncts, denominating them, from what* Reason *I know not.* But if we intended to try such *infusions* upon the *Kernels* (as should endeavour to alter their *kinds*) we should not approve of the bedabbling them with such infusions, (for over-*moisture* would rather enervate than strengthen them) but rather prepare the *Earth* the *year before*, with such *insuccations*, and then hinder it from producing any *Weeds*, till ready for the Kernels, and then in dewy times, and more frequently when our *Climate* were surcharg'd with *rain*, cover the *Beds* and *Pots* with the small leaves of *Rosemary*, *Gillyflowers*, or other oderiferous *Blossomes*, and repeat it often, to the end the *dews* may *meteorize*, and *emit* their finer *Spirits*, &c. Or if any shall please to be so liberal of their *Salts* and *Calcinations* of peculiar *Virtues* (though possibly the *Essay* may indanger their *seeds*) yet the mixture of such *Salts* finely reduc'd and strewed discreetly on their *Beds*, may be a more probable means, than those *Liquid Infusions* which have hitherto been so confidently boasted. For thus also we are in this *Age* of ours provided of more vigorous *Ingredients* for *trials* than were known to the *Ancients.* Finally,

From what has been deduc'd from the *Wilding* of several parts, it may manifestly appear, how much more *congeneal* some *soil* is than other, to yield the best *Cider-fruit* from the *Kernel*; and the *hazzle* ground, or quicker mould, much better than the more obstinate *clay* or ranker earth: In hot *Gravelly-Grounds*, where almost no sort of *Fruit* will grow, *Pears* will thrive; and a Friend of mine assures me, of *One* that clave a *Rock*, and filling it with a little good Earth, planted a *Pear-tree* therein, which prosper'd exceedingly: I add this, that none may go hence without encouragement.

CHAP. II.

Of Stocks.

THe former thus eſtabliſh'd, after all *humours* and *varieties* have been ſufficiently wearied, we ſhall find the *Wilding* to be the hardieſt and moſt proper *Stock* for the moſt delicate *Fruit*: This confirm'd by *Varro*, lib. 1. cap. 40. *In quamcunq; arborem inſeras*, &c. and 'tis with reaſon: However they do in *Herefordſhire*, both in practice, and opinion, limit this *Rule*; and to preſerve the guſt of any delicate *Apple* (as of the *Pear-main*, *Quince-Apple*, *Stotkin*, &c.) rather graff upon a *Gennet-Moyle* or *Cydoddin-Stock*, (as there call'd) than a *Crab-ſtock*; but then indeed they conclude the Tree laſts not ſo long; and 'tis obſerv'd, That *Apples* are better taſted from a clean, light land, &c. than from ſtiffer clay, or the more pinguid and luxurious ſoil, whence we may expect ſome aſſiſtance from the civility of the *Stock*, which is a kind of prepared *Soil*, or foundation to the *Graff*; even as our very *Tranſplantations* into better ground is likewiſe a kind of *Graffing*.

Thus in like manner our Maſter *Varro*, *loco citato* concerning *Pears*; *Si in Pyrum Sylvaticam*, &c. The *Wild-ſtock* does enliven the dull and phlegmatic *Apple*, and the Stock of a *Gennet-Moyle* ſweeten and improve an *Apple* that ſeems *over-tart*, as the *Pome-roy*, or ſome *Greening*, &c. or may rather ſeem to abate at leaſt ſome *Apple* over-tart and ſevere.

Your *Crab-ſtock* would be planted about *October*, at thirty two Foot diſtance, and not *graffed* till the third *Spring* after, or at leaſt not before the *ſecond*.

But if your deſign be for *Orchard* only, and where they are to abide, an *interval* of ſixteen Foot ſhall ſuffice for the *Dwarfiſh* kind, or in the Grounds where the *Red-ſtrake*, or other *Fruit-trees* are of ſmall bulk, provided the ground be yearly turn'd up with the *Spade*, and the diſtance quadrupled where the *Plough* has priviledge; this being the moſt expedite for ſuch as have no *Nurſery* ground.

CHAP.

CHAP. III.

Of Graffs *and* Inſitions.

MAke choice of your *Graffs* from a conſtant and well-bearing Branch.

And as the *Stock* hath a more verdant rind, and is capable to yield more plenty of *juice*, ſo let the *Graff* have more *Eyes* or *Buds*: Ordinarily three or four *Eyes* are ſufficient to give iſſue to the *Sap*; but as well in *Apples*, and *Pears*, as in *Vines*, thoſe *Graffs* or *Cions* are preferr'd in which the *buds* are not too far aſunder, or diſtant from the foot thereof: and ſuch a number of *buds* uſually determining the length of the *Graff*, there may divers *Cions* be made of one *Branch*, where you cannot procure plenty of them for ſeverals.

As to the ſucceſs of *graffing*, the main point is, to joyn the inward *rind* of the *Cion* to the inward rind of the *Stock*, ſo that the *ſap* of the *One*, may *there* meet with the ſap of the *Other*, and theſe parts ſhould be joyn'd cloſely, but not too forceably; that being the beſt and moſt infallible way, by which moſt of the quick and juicy parts are mutually united, eſpecially towards the bottom.

If the *Stock* be ſo big as to endanger the pinching of your *Graff*, when the *wedge* is drawn out of the *cleft*, let the inner ſide of the *Graff*, which is within the wood of the *Stock*, be left the thicker, that ſo the *woody* part of the *Cion* may bear the ſtreſs, and the *ſappy* part be preſerved from bruiſing. Some by an happy-hand, do with good ſucceſs *Graff* without cleaving the *Stock* at all, only by *Inciſions* in the *Rind*, as the *Induſtrious* Mr. *Auſtin* teaches us: But ſince this is not for every *Ruſtic* hand, nor ſeems to fortifie ſo ſtrongly againſt impetuous *Winds*, before the Union be *ſecure*, there had need be ſome extraordinary *defence*.

Chooſe the ſtreighteſt and ſmootheſt part of the *Stock* for the place where you intend to *graff*: If the *Stock* be all knotty (which ſome eſteem no impediment) or crooked, rectifie it with the fitteſt poſture of the *Graff*.

For a *Graff* covet not a *Cions* too ſlender; for the *Sun* and *Wind* will ſooner enforce it to wither: Yet are we to diſtinguiſh, that for *Inoculation*, we take the *Bud* from a ſprig of the laſt years ſhoot; and moſt allow that the *Cions* ſhould alſo have ſome of the former with it, that it may be the ſtronger to *graff*, and abide to be put cloſe into the *Stock*, which is thought to advance it in bearing.

In *Hereford-ſhire* they do frequently chooſe a *Graff* of ſeveral years growth; and for the *graffing* of ſuch large *Stocks* as are taken out of the *Woods* or *Nurſeries*, and fitted into rows for *Orchards*, they chooſe not the *Graffs* ſo ſmall as in other Countries they re-

quire them; which has, it seems, occasion'd some complaint from them that understand not the Reason of the first branch of this Note. Once for all, the stumpy *Graff* will be found much superiour to the slender one, and make a much nobler and larger Shoot. This upon experience.

Graff your *Cions* on that side of the *Stock* where it may receive the least hurt from the *South-west* Wind, it being the most common, and most violent that blows in *Summer*; so as the *wind* may blow *it* to the *Stock*, not from it: And when the *Zephyres* of the *Spring* are stirring, choose that *Season* before all others for this work.

Some there are who talk of removing the *Stock* about *Christmas*, and then also *graff* it; which there be that glory they can successfully do even by the fire side, and so not be forc'd to expect a two or three years rooting of the *Stock*; But in this *Adventure* 'tis adviseable to plunge the *Graff* three or four inches deep in the *Stock*. Lastly,

Be careful that the *Rain* get not into the *clefts* of your young graffed *Stocks*: Yet it has been noted, That many old Trees (quite decay'd with an inward hollowness) have born as full burdens, and constantly, as the very soundest, and the Fruit found to be more delicate than usually the same kind from a perfect and more entire Stock.

Except some former case requires it, leave not your *Graffs* above four, five, or (at most) six inches of length above the *Stock*; for by the length it draws more feebly, and is more expos'd to the shocks of the *Wind*, or hurt by the *Birds*; and you shall frequently perceive the summities and tops of such young *Graffs* to be mortified and die.

The *Genet-moyle* is commonly propagated by cutting off the *Branch* a little below a *Burr-knot*, and setting it without any more Ceremony; but if they be also *graffed* first as they grow on the *Tree*, and when they have *covered* the *head*, cut off below the *Burr*, and set, it is far better: In this separation cut a little beneath the *Burr*, and *peel* off, or *prick* the *Bark*, almost to the *knot*: Thus also if the *Branch* have more *knots* than *one*, you may *graff*, and *cut off* yearly, till within half a foot of the very *stem*, which you may *graff* likewise, and so let stand.

Now for encouragement in transporting *Graffs* at great distance, we find that with little care (their tops uncut and unbruis'd) they will hold good, and may support the transportation by *Sea* or *Land* from *October* or *November* to the very end of *March*: *See Sir H. Plat's Offers*, Paragr. 75. To which may be added, That if the *Graff* receives no hurt by lying in the *Stock* expos'd to all rain, dews, and severities of *Winter* frosts from *December* to *Spring*, (as has been experimentally noted); then (by a stronger presumption) in oyled, or rather waxen Leather, it may undoubtedly escape. Some prescribe, That the *ends* shall be stuck in a *Turnip*: and many excellent *Graffers* (*Gentlemen* some of very good credit) have assured us, That the *Graffs* which seemed withered, and fit

to

to be cast away, have proved the best when tri'd. Thus in honest *Barnaby Googes* noble *Heresbachius* you will find it commended to gather your *Cions* in the *wane* of the *Moon*, at least ten days before you *graff* them; and *Constantine* gives this reason for it, That the *Graff* a little withered, and thirsty, may be the better received of the *Stock*: I know some who keep them in *Earth*, from the end of *October*, till the *Spring*, and will hardly use them before. There are also other inducements for this practice, as *Simon Harwood*, *pag.* 4. has shew'd us; but none beyond our own *experience*, who have known *Graffs* gathered in *December* thrive and do perfectly well.

The best expedient to *convey* Graffs is to stick the *cut-ends* in *Clay*, envelop'd with a *clout* to preserve it from falling off; and to wrap the other part of the Twigs in dry *Hay* or *straw-bands*, which will secure them both from the Winds, Galling, and other injuries in Transportation: Nay, I have known them sent many *hundred Miles* from *beyond* the *Seas* accommodated to an ordinary Letter, and though somewhat short, and with very few *Buds*, yet with excellent success; and if this course were more universally consider'd, we might be furnish'd with many great *Curiosities* with little difficulty or charge.

CHAP. IV.

Of Variety *and* Improvements.

IF any man would have *variety* of unexpected and unknown *Apples* and *Pears*, for the improvement of *Cider*, or *Palate-fruit*, there is more hope from *Kernels* rais'd in the *Nursery* (as has already been directed) than from such tryals of *graffings* as we have yet seen in present use.

But if we would recover the patience, and the sedulity of the *Antient* (of which some brief account will follow) or listen to some unusual Proposals, then may we undertake for some variety by *Insitions*.

To delude none with Promises, we do much rather recommend the diligence of enquiring from all *Countries* the best *Graffs* of such *Fruits* as are already found excellent for the purpose we design: As from the *Turgovians* for that Pear of which Dr. *Pell* gives so good and weighty informations; and of which I had presented me some *Graffs*, together with a taste of the most superlative *Perry* the *World* certainly produces; both which were brought near 800 Miles, without suffering the least diminution of Excellency, by my Worthy *Friend* Mr. *Hake* a *Member* of the *R. Society*, in the year 1666, and tasting as high, and as rich as ever to the *present* year I am writing this *Paragraph*.

But as some sorts are to be enquired after for the *Palate* and the *Table*,

Table, so 'tis now our main business to search after such as are excellent for their *Liquor*, either as more *pleasant*, more *winy*, or more *lasting*; of which sort the *Bosbury bare-land*-Pear excels. The *Red strake*, *Bromebury-Crab*, and that other much celebrated *Wilding* call'd the *Oaken-pin*, as the best for *Cider*; though for sufficient reasons we do yet prefer the *Red-strake*, to oblige the *emulation* of other *Countries*, 'till they find out a *Fruit* which shall excell it, and which we do most heartily wish.

But to pursue the diligence of the *Antients*, we direct the eye to a general expedient for all kinde of *varieties* imaginable, and which we hold far better than to present the World with a *List* of the particulars either known, or experimented: For who indeed but a *Fool* will dare to tell *Wonders* in this severe *Age*, and upon an *Argument* which is so environ'd with *Imposture* in most *Writers* old or new? Much less pretend to *Experiments* which may fail to succeed by default of an unhappy *occasion*, when the *conclusion* must be *Penes Authorem sit fides!*

And truly men receive no small discouragement from the ugly affronts of *Clowns*, and less cultivated persons, who laugh and scorn at every thing which is above their understanding: For example; *I knew a man* (writes Dr. *Beale* to me) *and he a most diligent* Planter *and* Graffer, *who for thirty or fourty years made innumerable* Essays *to produce some* change *of an* Apple *by Graffing: It seems he was ambitious to leave his* Name *on such a* Fruit, *if* he *could have obtained it; but always fail'd; for he perpetually made his* Trials *upon* Crab-stocks, *or such (at least) as did not greatly differ from the* kind; *and he ever found that the* Graff *would* prædominate. And how infinitely such Men having lost their own aims, will despise better *Advice*, we leave to observation.

However, let us add, That where nothing is more facile than to raise new kinds of *Apples* (*in infinitum*) from *Kernels*: Yet in that *Apple-Country* (so much addicted to *Orchards*) we could never encounter more than *two* or *three* persons that did believe it: But in other places we meet with many that, on the other side, repute *Wildings*, or (as they call them) *Kernel-fruit*, at all adventure, and without choice, to be the very best of *Cider-fruit*, and to make the most noble Liquor. So much does the common judgment differ in several *Countries*, though at no considerable distance, even in *matters* of visible *Fact*, and *epidemical* experience.

It has been soberly affirmed, that by *graffing* any *White Apple* upon an *Elm*, it changes the *Apple*, and particularly to a *red* colour: I have a Direction where we may be eye-witnesses of the proof; whatever the Truth of it be, we are not over-hastily to erect *Hercules's Pillars*; but rather to encourage the *Experiment*.

To gratifie yet the *Ingenious*, instruct others, and emancipate us all from these *bastinado-Clowns*, we are furnish'd with many *Arguments* and proofs to assure a good success, at least for *variety* and *change*, if not for infinite *choice*: Two or three antient *References* being duly præmis'd; namely, First,

1. That

1. That 'tis in vain to expect change of *Apples* from *Graffing* upon differing *Stocks* of *Crabs* or *Apples*.

2. In vain also are we to look for a kind Tree from a very much differing *Stock*; as an altered *Pear* to grow kindly on a *Crab* or *Apple-stock*, *& contra*. There go about indeed some *jugglings*, but we disdain to name them.

It is one thing to find the kindest *Stock* for the Improvement of any Fruit; as the *Crab-stock* for the delicate Apple, the *Wild* or *Black-Cherry-Stock*, for the *graffs* of the fairest *Cherries*; the largest *Vine*, (whose root makes best shift for relief) to accept the *Graff* of the more delicate *Vine*; the *White Pear-Plum Stock*, for the *Abricot*, &c. And another thing it is to seek the *Stock* which begets the wonder, variety, and that same transcendent and particular excellency we inquire after: For this must be at more remote distance; and we offer from the *Ancients* to shew, how it may be at any distance whatsoever: But the whole expedient seems to be hinted by Sir *H. Plat*, *pag.* 72. where he affirms, that *If two Trees grow together, that be apt to be graffed one into another, then let one branch into another, workmanly joyning Sap to Sap.* This our *Gardiners* call *Graffing by Approach*, and is explicated at large by *Columella*.

But in this expres *Rule* he is too narrow for our purpose, and far short of old experience; as we find in *Parag.* 63. where he affirms, *We may not graff a contrary Fruit thereon.* Against *this* we urge; That any contrary *Fruit* may be adventured, and any Fruit upon any fruitless *Stock* growing in propinquity in the same *Nursery*; as it is not only affirm'd, but seriously undertaken, and experimentally proved by the sober *Columella*, in several of his Treatises; Turn to the *eleventh* Chapter of his *fifth* Book, (*Stephens* Edition:) *Sed cum antiqui negaverint posse omne genus surculorum in omnem Arborem inseri, & illam quasi finitionem, qua nos paulò ante usi sumus, veluti quandam legem sanxerint, eos tantùm surculos posse coalescere, qui sint cortice, ac libro, & fructu consimiles iis arboribus quibus inseruntur, existimavimus errorem hujus opinionis discutiendum, tradendámque posteris rationem, qua possit omne genus surculi omni generi Arboris inseri.* And the example follows in a *Graff* of an *Olive* into a *Fig-stock* by *Approach* (as we call it,) which he also repeats in the twenty seventh *Chapter* of his Book *De Arboribus*, without altering a syllable. But possibly in this *check* at the *Ancient* he might aim at old *Varro*, whom we find threatning no less than *Thunderbolts* and *Blasts* to those who should attempt these strange *Marriages*, and did not sort the *Graff* with the *Tree*; consult *lib.* 1. *cap.* 40. And yet you may see this *Art* assum'd by *Columella* for his own invention (1500 years since) to be no news to *Varro* 200 years older; where he goes on, *Est altera species ex arbore in arborem inserendi nuper animadversa in arboribus propinquis*, &c. Though here again we may question our Masters *nuper animadversa* too; since before he was born *Cato* relates it as usual to *Graff* Vines in the manner by them prescribed, *cap.* 41. *Tertia insitio est: Terebra vitem quam inseres*, &c. Which by the way makes us admire how the witty *Walchius* in his Discourse *De vitibus*

vitibus fructuariis, pag. 265. could recount the *graffing* of *Vines* amongst the wonders of *Modern Inventions:*

But it seems *Varro* and his *Contemporaries* did extend the practice beyond *Cato*; and *Columella* proceeded further than *Varro*, even to all sorts of Trees, however differing in nature, quality, bark, or season: And then *Palladius* assumes the result, and gives us the particulars of the success in his *Poem*, *De Insitionibus*. And to these four as in chief (no phantastical or counterfeit persons) we refer the Industrious:

But be pleas'd to take this note also: As soon as your *Graff* hath attained to a *second*, or at fartherst a *third* years growth, take it off the *Stock*, and then graff it upon a *Stock* of a more *natural* kind: For in our own *Trials* we have found a *graff* prosper the second year exceeding well; yet the third the whole growth at once blasted quite to the very *Stock*, as if *Varro*'s Augurs had said the word.

To this add, the making use of such *Stocks* as in this *Experiment* may contribute some special aid to several kinds of humane *Infirmities*: As suppose the *Birch* Tree for the *Stone*, the *Elm* for *Fevers*, &c. For 'tis evident, that by such *Insitions*, the *Branch* may convert the *Sap* of the *Root* even of another *species* into its own nature, and alter all its *properties*; though in *some* they *dominere*, as the *Branch* of the *Apple* in the *Rhamnus*, or *Mezerea*, acquires a *Purgative* quality. And by these means why may not the *Fruit* by effectual *Marriages* be rendred *Cordial*, *Astringent*, *Purgative*, *Sudorific*, *Soporiferous*, and even *Deliterious* and Mortal: But this we only hint.

Moreover, To *graff* rather the *Wilding*, or *Crab*, than the *Pepin*, because the *Wilding* is the more natural; and *Nature* does more delight in *progress*, than to be *Retrograde* and go backwards.

I should also expect far more advance from a more *pungent sap*, than from *Insipid*; as generally we see the best and vigorous *juices* to salute our *Palats* with a more agreeable *piquancy* and tartness; for so we find the rellish of the *Stocking-Apple*, *Golden Pepin*, *Pearmain*, *Eliot*, *Harvy*, and all (both *Russetings* and *Greenings*) to be more poignant than of others.

And here we note from *Palladius*, That the *Ancients* had the success which we all, and particularly Sir *H. Plat*, does so frequently deny, as in the particular of *graffing* the *Apple* on the *Pear*, *& contra*. Let us hear him *de Pomo*.

The *Graffed-Crab* its bushy Head does rear,
Much *Meliorating* the inserted *Pear*:
Its self to leave its *Wildness* does invite,
And in a *Nobler issue* to delight.

Insita proceris pergit concrescere ramis,
Et sociam mutat malus amica Pyrum:

Séque

Séque feros ſylvis hortatur linquere mores,
Et partu gaudet nobiliore frui.
Pallad. de Inſitionib. *lib.* 14.

But poſſibly *Palladius* aſſum'd this *Poetical* expreſſion, upon preſumption, that no man in his days durſt degrade the moſt excellent *Quince* to ſupport the *Cyon* of another *Fruit*, which then muſt be of leſs eſteem, but we by our *luxury* have found the ſucceſs.

And we have good argument to believe; That *Virgil*, and *Columella*, in ſeveral of their wonderful Relations of theſe kinds of mixture, (which but for the prolixity we might now recite) did not ſo far affect *Wonders* as to deſert the truth.

You may alſo obſerve, That as well the *French Gardiner*, and our *Modern Planters*, have found the ſame benefit from the *Stock* of the *Quince*, as old *Palladius* did, it ſeems, acknowledge; yet (as he conceiv'd) more hoſpitable ſtill with its own *kindred*, and that

Though the *Quince-ſtock* admit all other *Fruit*,
Its *Cyon* with no other *ſtock* will ſuit:
Scorning the *Bark* of Forreign Trees, does know
Such lovely *Fruit* on no mean *ſtem* can grow:
But the *Quince-Graff*, to the *Quince-ſtock* is joyn'd,
Contented only to *improve* its kind.

Cum præſtet cunctis ſe fulva cydonia pomis,
Alterius nullo creditur hoſpitio.
Roboris externi librum aſpernata ſuperbit,
Scit tantum nullo creſcere poſſe decus:
Sed propriis pandens cognata cubilia ramis,
Stat, contenta ſuum nobilitare bonum.
Pallad. de *Malo Cydonio.*

Laſtly, We did by unexpected chance find the facility of *graffing* the very youngeſt *Stocks*, even of one years growth, by the *Root*: At a ſecond removal of the *Stocks* (being then of two years growth) we obſerved ſome *Roots* ſo faſt cloſed together into one, as not to be divorced: Hereupon we concluded, If caſualty, or negligence, chance of ſpade, or oppreſſion of neighbourhood did this, by *Art* it might be done more effectually, and poſſibly to ſome deſirable purpoſe; for that then the *ſtock* was more apt to receive a maſtering *Impreſſion*; and any *Garden* Plant whatſoever might by this *proceſs* interchange and mingle their *Roots*. But this can extend no farther than the *Stock* may prevail with the *Graff*.

And thus we have preſented our diligent *Cideriſt* with what Obſervations and Arguments of Encouragement, grounded on frequent *Experience*, we have received from our moſt ingenious *Correſpondents*, eſpecially the Learned and truly Candid D^r *Beale*, in whoſe *Perſon* we have ſo long entertain'd you: and to theſe we could add ſundry others, were it not now time (whiles we diſcourſe

of *possibilities*) to conclude with something *certain*, and to speak of what we have.

For the kinds then of *Cider-Apples* in being; *Glocester-shire* affects the *Bromsbury Crab*; It affords a smart, winy *Liquor*, and is peculiarly hardy, but not so proper for a cold and late-bearing *Climate*, it being not *ripe* in *hot Land* till the end of *Autumn*, nor fit to be ground for *Cider* till *Christmas*, lying so long in heaps and preparation.

It is in the same *Shire* that they likewise much esteem of the *white* and *red Must-Apple*, the sweetest as well as sowrest *Pepin*, and the *Harvy-Apple*, which (being boyl'd) some prefer to the very best of all *Ciders*; though from any experience we have yet seen, we cannot recommend it, and it will want more particular and infallible *Directions* before we can be reconciled to the *Adventure*, which we have observed so frequently to miscarry.

But about *London*, and the more Southern *Tracts*, the *Pepin*, and especially the *Golden*, is esteemed for the making of the most delicious of that *Liquor*, most wholesom, and most restorative; and indeed it may (in my poor judgment) challenge those *perfections* with very good reason.

By others the *Pearmain* alone is thought to come in competition with the best; but, say they, the *Cider* is for the most part found of the weakest, unless encourag'd with some agreeable *Pepin* to inspirit it; whereas *this* is to be taken according to the constitution of the *Fruit*; for even *Pepins* do differ as much from *Pepins* in Tast and Liquor, as the *Kind*, and the *Soil* dispose them; nay, though of the same *Species*; so as the *Cider* of the *Pearmain* (though likewise very different) does not seldom exceed it in that briskness which others attribute to the *Pepin*, which is for the most part more smooth and less *poinant*: I conceive a good way of extracting the *Spirits* of these *Fruits*, might prove a likely *Criterion* to ground our judgments on in all these niceties; whilst by the way, we may note, that of all *Apples*, that bear one general Name, the *Pepin* seems the most to differ; and the *Cider* from the genuine *Cider-Fruit*, keeps neerest to the same strength and relish.

Some commend the *Fox-Whelp*; and the *Gennet-Moyle* was once preferr'd to the very *Red-strake*, and before the *Bromsbury-Crab*; but upon more mature consideration, the very *Criticks* themselves now *Recant*, as being too effeminate and soft for a *judicious* Palate.

The *Red-strake* then amongst these accurate *Tasters* hath obtained the absolute præeminence of all other *Cider-fruit*, especially in *Hereford-shire*, as being the richest and most *vinous* Liquor, and now with the more earnestness commended to our practice, for its celerity in becoming an *Orchard*, being ordinarily as full of *Fruit* at *ten* years growth as other Trees are at *twenty*; the *Pepin* or *Pearmain* at thirty: And lastly, from that no contemptible quality, That though the smiles of it intice even on the *Tree*, as being indeed better than most other *Table-fruits* whilst hanging, yet it needs

See Aph. 42, 45, 37.

needs no *Priapus* for Protector, since (as beautiful as 'tis) it has no such temptation to the *Taste*, 'till it be either *baked*, or converted into *Cider*. The same may be affirmed also of the *Broms-bery-Crab*, *Bareland-Pear*, and many other *Wildings*, who are no less at their *Self-defence*; yet the *Gennet-Moyle* at due *maturity*, has both a gentle, and agreeable relish; their unagreeableness to the *Palate* (as else-where noted) proceeding only from the separation the *juice* makes from the *Pulp*, which even *Children* do remedy by *contusing* them on their sharpned Elbows; which (if throughly weigh'd) seems to *dispute*, if not *overthrow* some *Hypotheses* of *Fermentation*.

In sum, The *Red-strake* will at three years *graffing* give you fair hopes, and last almost an hundred years; if from sundry mens *Experience* of more than 60 years, we may divine, and that it agree with the *Soyl*. And the *Gennet-Moyles* hasten to an *Orchard* for *Cider* without trouble of *Art* or *Graffing*: But note, That this *Tree* is very apt to contract a *bur-knot* near its Trunk, where it begins to divide; and being cut off under that *boss*, commonly grows (if so set) and becomes speedily a Tree, except it encounter an extraordinary dry *Summer* the first year to give it check. And though the knack of *graffing* be so obvious, yet this more appearing facility does so please the lazy *Clowns*, that in some places they neither have nor desire any other *Orchards*; and how this humour prevails you may perceive by the hasty progress of our *Kentish Codlin* in most parts of *England*. But this hasty growth and maturity of the *Tree* is by another *Instance* confirm'd to us from that worthy *Gent.* Mr. *Blount* of *Orleton*, who writes me word, that some of the rejected Spray, or Prunings of the *Gennet-Moyle*, taken by chance to *rice* a Plot of *Pease* (though stuck into the Earth but at *April*) put forth root, grew, blossom'd, and bore *Apples* the same year. *See C.* Taylor's *Discourse of* Cider.

But to advance again our *Red-strake*, even above the *Pepin*, and the rest (besides the celerity of the improvement and constant burthen) consider we the most incredible product, since we may expect from each *Apple* more than double the quantity; so as in the same *Orchard*, under the same *culture*, thirty *Red-strake* Trees shall at ten years *graffing* yield more *Cider* than a *hundred* of those *Pepins*, and surmount them in proportion during their period at least sixty or seventy years: So that granting the *Cider* of the *Golden-Pepin* should excel, (which with some is precarious) yet 'tis in no wise proper for a *Cider-Orchard*, according to our general design, not by half so *soon bearing*, nor so *constantly*, nor in that *quantity*, nor *fulness* or *security*.

Concerning *Perry*, the *Horse-Pear* and *Bare-land-Pear* are reputed of the best, as bearing almost their weight of spriteful and *vinous* Liquor. The Experienced prefer the *tawny* or *ruddy* sort, as the colour of all other most proper for *Perry*: They will grow in *common-fields*, *gravelly*, *wild*, and *stony* ground, to that largeness, as *one* only *Tree* has been usually known to make three or four *Hogsheads*: That of *Bosbury*, and some others, are so tart and Aph. 43. Aph. 34.

harsh that there is nothing more safe from plunder, when even a *Swine* will not take them in his mouth. But thus likewise would the abundance preserve these Fruits, as we see it does in *Normandy*.

CHAP. V.

Of the Place *and* Order.

WE do seriously prefer a very wild *Orchard*, as mainly intended for the publick utility, and to our *purpose* of obliging the *People*, as with a speedy *Plantation* yielding store for *Cider*: Upon this it is that we do so frequently inculcate, how well they thrive upon *Arable*, whilst the continuing it so accelerates the growth in almost half the time: And if the *Arable* can be so levell'd (as commonly we see it for *Barly*-land) then without detriment it may assume the Ornament of *Cyrus*, and flourish in the *Quincunx*.

If it be *shallow* Land, or must be rais'd with high *Ridges*, then 'tis necessary to have more regard of planting on the *tops* of those eminencies, and to excuse the unavoydable breach of the *decussis*, as my Lord *Verulam* excuseth the defect of our humane *phansies* in the *Constellations*, which obey the *Omnipotent* order rather than ours: Add to this the rigour of the *Royal Society*, which approves more of *plainness* and *usefulness*, than of *niceness* and *curiosity*; whiles many putting themselves to the vast charge of levelling their grounds, oftentimes make them but the worse; since where the places are full of gastly inequalities, there may be planted some sorts of *Cider fruit*, which is apt by the great burden to be press'd down to the ground, and there (whiles it hides *Irregularities*) to bear much better, and abundantly beyond belief; for so have been seen many such recumbent *Pear-trees* bear each of them *two*, *three*, yea, even to *six* or more *Hogsheads* yearly.

And for this *Cider*, whiles we prefer some sorts of *Wildings* which do not tempt the *palate* of a *Thief*, by the caution we shall not provoke any man to repent his charge from the necessity of richer and more reserv'd *Enclosures*; Though we have frequently seen divers *Orchards* successfully planted on very poor *Arable*, and even in stony *Gleab*, *gravel* and *clay*, and that pretty high, on the sides and declivities of *Hills*, where it only bears very short grass, like to the most ordinary *Common*, not worth the charge of *Tillage*: And yet even there the *Tenants* and *Confiners* sometimes enclose it for the *Fruit*, and find their reward, though not equally to such *Orchards* as are planted on better ground, and in the Vallies. Hence we suggest, That if there be no *Statute* for it, 'twere to be wished there were a *Law* which should allow *endeavours* of this nature out of the *Common-field*, to enclose for these *Encouragements*, since

since both the *Publick* and the *Poor* (whatever the clamour is) are advantaged by such *Enclosures*, as *Tusser* in his old Rhimes, and all indifferent observers apprehend with good reason.

True indeed it is, That all Land is not fit for *Orcharding*, so as even where to form just *Inclosures*, being either too *shallow* and *dry*, or too *wet* and *starving*: *But this* (saith the judicious M^r *Buckland*) *we may aver, That there are few* Parishes, *or* Hamlets *in* England *where there are not some fat and deep* Headlands *capable of* Rows *of* Trees; *and that* (*as hath been said*) *the raised* Banks *of all* Inclosures *generally by the advantage of the depth, fatness, and health of their Mould, yield ready opportunity for planting*; (*yea, and in many* Countrys *multitudes of* Crab-stocks *fit to be* graffed;) *in which latter* (saith he) *I have frequently observed very goodly Fruit-bearing Trees, when in the same soil* Trees *in* Orchards *have been poor and worth nothing.* To conclude,

If the soil be very bad and unkind, any other *Fruit* (which it may more freely yield without requiring much depth, and less *Sun*) may be planted instead of *Apples*.

CHAP. VI.

Of Transplanting, *and* Distance.

THe most proper season for *Transplanting* is before the hard Frosts of *Winter* surprize you, and that is a competent while before *Christmas*: And the main point is, to see that the *Roots* be larger than the *Head*; and the more ways that extends, the better and firmer.

If the *Stock* seems able to stand on its own three or four legs (as we may call 'em,) and then after settlement some stones be heaped or laid about it, as it were gently wedging it fast, and safe from Winds (which *stones* may after the second or third year be removed) it will salve from the main danger: For if the *Roots* be much shaken the first *Spring*, it will hardly recover it.

You may transplant a *Fruit-Tree* almost at any tolerable *season* of the *Year*, especially if you apprehend it may be spent before you have finish'd your work, having many to remove: Thus, let your *Trees* be taken up about *Allhallontide*, (or as soon as the *leaf* begins to fall); then having trimm'd and quickned the *Roots*, set them in a *Pit*, forty, fifty, or a hundred together, yet so as they may be covered with mould, and kept very fresh: By the *Spring* they will be found well cured of their *wounds*, and so ready to strike *root* and put forth, that being *Transplanted* where they are to stand, they will take suddenly, and seldom fail; whereas being thus cut at *Spring* they recover with greater hazard.

The very *Roots* of *Trees* planted in the ground, and buried within a quarter of an Inch, or little more, of the level of the *Bed*, will sprout, and grow to be very good *Stocks*. This and the other

other being Experiments of our own, we thought convenient to mention.

By the oft removal of a *Wild-ſtock*, cutting the ends of the *Roots*, and diſ-branching ſomewhat of the *Head* at every *change* of *place*, it will greatly abate of its natural *wildneſs*, and in time bring forth more *civil* and *ingennous* Fruit: Thus *Gillyflowers* do (by oft removals, and at *full-Moon* eſpecially) increaſe and multiply the leaves.

Plant not too *deep*; for the *over-turf* is always richer than the *next* Mould. How material it is to keep the *coaſt* or ſide of the *Stock*, as well in *Fruit-trees* as in *Foreſt*, we have ſufficiently diſcuſs'd; nor is the Negative to be prov'd.

See *Aph.* 35. For the *diſtance* in *Fields*, they may be ſet from *thirty two* to *ſixty* Foot, ſo as not to hinder the *Plough*, nor the benefit of manure and ſoil; but in hedg-rows as much nearer as you pleaſe, Sun and Air conſidered.

CHAP. VII.

Of the Fencing.

SEeing a *Cider-Orchard* is but a wild Plantation, beſt in *Arable* well enclos'd from *Beaſts*, and yet better on the Tops, Ridges, and natural Inequalities, (though with ſome loſs of Order, as we ſhew'd,) one of the greateſt diſcouragements is the *preſerving* of our *Trees* being planted, the raiſing of them ſo familiar.

We have in our *Sylva* treated in particular of this, as of one of the moſt material *obſtacles*; wherein yet we did purpoſely omit one *Expedient*, which came then to our hands from the very Induſtrious Mr. *Buckland* to the Learned Dr. *Beal:* You ſhall have it in his own words.

This of Fencing *ſingle* Trees *uſeth to be done by* Rails *at great charges*; *or by* Hedges *and* Buſhes, *which every other year muſt be renew'd, and the* materials *not to be had in all places neither. I therefore prefer and commend to you the enſuing form of* Planting *and* Fencing, *which is more cheap and eaſie, and which hath other* Advantages *in it, and not commonly known. I never ſaw it but* once, *and that imperfectly perform'd; but have practis'd it* my ſelf *with* ſucceſs: *Take it thus.*

Set your Tree *on the* Green-ſwarth, *or five or ſix* inches *under it if the* ſoil *be very healthy*; *if* moiſt *or* weeping, *half a foot above it*; *then cut a* Trench *round that* Tree, *two foot or more in the* cleare *from it: Lay a rank of the* Turfs, *with the* graſs *outward, upon the* inner *ſide of the* Trench *towards your* Plant, *and then a* ſecond *rank upon the former, and ſo a* third, *and* fourth, *all orderly plac'd,* (as *in a* Fortification) *and leaning towards the* Tree, *after the form of a* Pyramide, *or larger* Hop-hill: *Always as you place a row of* Turfs

in

in compass, you must fill up the inner *part of the* Circle *with the loose Earth of the second* spit *which you dig out of your* Trench, *and which is to be two foot and half wide, or more, as you desire to mount the* hillock, *which by this means you will have rais'd about your* Plant *near three foot in heighth. At the* point *it needs not be above two foot or eighteen inches diametre, where you may leave the* Earth *in form of a* Dish, *to convey the* Rain *towards the* body *of the Tree; and upon the top of this* hillock *prick up five or six small* Briars *or* Thorns, *binding them lightly to the body of the* Plant, *and you have finish'd the work.*

The commodities *of this kind of* Planting *are,*

First, *Neither* Swine, *nor* Sheep, *nor any other sort of* Cattel *can annoy your* Trees.

Secondly, *You may adventure to set the smaller* Plants, *being thus raised, and secur'd from the reach of* Cattel.

Thirdly, *Your* Trees *fasten in the* Hillock *against violence of* Winds, *without* Stakes *to fret and* canker *them.*

Fourthly, *If the* soil *be* wet, *it is hereby made* healthy.

Fifthly, *If very* dry, *the* hillock *defends from the outward* heat.

Sixthly, *It prevents the* Couch-grass, *which for the* first *years insensibly robs most plants in sandy grounds apt to* graze. *And,*

Lastly, *The* grazing bank *will recompence the nigardly* Farmer *for the waste of his* Ditch, *which otherwise he will sorely bethink.*

In the second *or* third *year (by what time your* Roots *spread) the* Trench, *if the* Ground *be moist, or* Seasons *wet, will be neer fill'd up again by the treading of* Cattel; *for it need not be cleansed; but then you must renew your* Thorns: *Yet if the* Planter *be curious, I should advise a casting of some small quantity of* rich Mould *into the bottom of the* Trench *the second year, which may improve the growth, and invite the* Roots *to spread.*

In this manner of Planting, *where the* soil *is not rich, the exact* Planter *should add a little quantity to each Root of Earth from a frequented* High-way, *or* Yard *where* Cattel *are kept; One* Load *will suffice for six or seven* Trees; *this being much more proper than* rotted soil *or* loose Earth; *the fat Mould best agreeing with the* Apple Tree.

The broader and deeper your Ditch *is, the higher will be your* Bank, *and the securer your* Fence; *but then you must add some good Earth in the second year, as before.*

I must subjoyn, That only Trees *of an* upright growth *be thus planted in* open grounds; *because spreading of low growing* Trees *will be still within reach of* Cattel *as they encrease: Nor have I met with any inconvenience in this kind of* Transplanting (*which is applicable to all sorts of* Trees) *but that the* Mole *and the* Ant *may find ready entertainment the first year, and sometime impairs a weak rooted* Plant; *otherwise it rarely miscarries. In sum,*

This manner of Fencing *is soon executed by an indifferent* Workman, *who will easily set and guard* six Trees *in a* Winter *day.* Thus far Mr. *Buckland:* To which we shall only add, That those which are planted in the *Hedg-rows* need none of these defences; for (I

am

am told) in *Hereford-ſhire* in the Plantations of their *Quick-ſets*, or any other, all men did ſo *ſuperſtitiouſly* place a *Crab-ſtock* at every *twenty foot* diſtance, as if they had been under ſome rigorous *Statute* requiring it; and I am of Opinion, that 'twere better to be content with *Fruit* in the bordering *Mounds*, than to be at all this trouble to raiſe *Tumps*, or temporary banks in the midſt of an *Incloſure*; or if *Pears* will thrive in the Plain of the *Ortyard*, as we frequently ſee them, (where neither *Apple* or other *Fruit* could in appearance be expected) then *Crabs*, which may be raiſed on the *Mounds*, will kindly mix the *Liquor* into very good *Beverage*.

CHAP. VIII.

Of Pruning *and* Uſe *of the* Fruit-Trees.

THe *Branches* are to be *lopp'd* in proportion to the bruiſes of the *Roots*; whoſe *fibres* elſe ſhould only be quickned, not altogether cut off nor intangled: For the *Top*, let a little of each arm be lopp'd in *Cider-fruit* only; but for the *Pears*, cut two or three *buds* deep at the ſummities of their aſpiring *Branches*, juſt above the *eye* ſlanting; this will keep them from over-haſty mounting, reduce them into *ſhape*, and accelerate their *bearing*.

To this we add again out of Dr. *Beals Herefordſhire Orchards*, pag. 23. *In a* graffed plant *every* Bough *ſhould be lopped at the very tops, in* Apples *and* Pears, *as in* Cherries *and* Plums, if *Tranſplanted* without violation of *Roots*, which only indeed renders it leſs neceſſary.

In moſt kinds of natural Plants *the* Boughs *ſhould not at all be* lopped, *but ſome taken off cloſe to the* Trunk, *that the Root at firſt* Tranſplantation *be not engaged to maintain too many* Suckers, this to be underſtood, though of ſuch as grow naturally from the *Kernel*, or the *Bur-knot*; eſpecially if *removed* after they are well rooted. *And this muſt be done with ſuch diſcretion, that the* Top-branches *be not too cloſe together; for the natural* Plant *is apt to grow* ſpiry, *and thereby fails of fruitfulneſs. Therefore let the reſerved* Branches *be divided at a convenient roundneſs.*

The Branches *of thoſe we call natural Plants (for uſually the* Graffed *generally fail) that are cut off, may be ſet, and will grow, though ſlowly.*

If the Top *prove* ſpiry, *or the fruit* unkind, *then the due remedy muſt be in re-*graffing. See *Chap.* xxviij. *in Sylva.*

Beſides the Perrys, dri'd *and* preſerv'd *Fruit, uſeful is the* Pear-Tree (*and beſt the moſt barren, or* Pig-taile, *as they call it, which is the Wild* Pyraſter) *for its excellent colour'd* Timber, hard *and* levigable (*ſeldom or not ordinarily* worm-eaten) *eſpecially for* Stools,

Stools, Tables, Chairs, Piſtol-Stocks, Inſtrument-Maker, Cabinets, *and very many works of the* Joyner, (*who can make it eaſily to counterfeit* Ebony) *and* Sculptor, *either for* flat, *or* emboſs'd-*Works, and to* Engrave *upon, becauſe the* Grain *intercepts not the* Tool. *And ſo is likewiſe both the* Black-Cherry (*eſpecially for the* Necks *of* Muſical-Inſtruments) *and the* Plum-Tree.

ANIMADVERSION.

IF *some of the following* Discourses *seem less constant, or (upon occasion) repugnant to one another, they are to be consider'd as relating only to the several* gusts, *and guizes of* Persons *and* Countries, *and not to be looked upon as recommended* Secrets, *much less* impos'd, *farther than upon* Tryal *they may prove grateful to the* Publick, *and the different inclinations of those who affect these* Drinks: *nor in reason ought any to decry what is propos'd for the* universal Benefit; *since it costs them nothing but their civility to so many obliging* Persons.

GENERAL ADVERTISEMENTS CONCERNING CIDER:

By Dr *BEALE.*

1. HE that would treat exactly of *Cider* and *Perry*, must lay his foundation so deep as to begin with the *Soyl*: For as no Culture or Graffs will exalt the *French Wines* to compare with the *Wines* of *Greece*, *Canaries*, and *Montefiasco*; so neither will the *Cider* of *Bromyard* and *Ledbury* equal that of *Ham lacy*, and *Kings-Capell*, in the same small County of *Hereford*.

2. Yet the choice of the *Graff* or *Fruit* hath so much of prevalency, that the *Red-strake-Cider* will every where excel common *Cider*, as the *Grape* of *Frontignac*, *Canary*, or *Baccharach*, excels the common *French Grape*; at least, till by time and traduction it degenerateth.

3. I cannot divine what *Soil* or what *Fruit* would yield the best *Cider*; or, how excellent *Cider* or *Perry* might be if all *Soils* in common and all *Fruit* were tried; but for *thirty years* I have tried all sorts of *Cider* in *Hereford-shire*, and for three years I have tried the best *Cider* in *Somerset-shire*; and for some years I have had the best *Cider* of *Kent* and *Essex* at my call; yet hitherto I have always found the *Cider* of *Hereford shire* the best, and so adjudged by all good *Palates*. But I shall rejoice to be better informed, and truly from all other *Countries*; and do both wish and hope, that in a short time, we shall every where be *rich* in many *Improvements*.

4. I cannot undertake to particularize all kind of *Soil*, no more than to compute how many *Syllables* may be drawn from the *Alphabet*; the number of Alphabetical *Elements* being better known than the *Ingredients* and *Particles* of *Soil*, as *Chalk*, *Clay*, *Gravel*, *Sand*, *Marle*, (the tenaciousness, colour, and innumerable other qualities, shewing endless diversities;) and the Fruit of *Crabs*, *Apples*, and *Pears*, being as various as of *Grapes*, *Figs*, and *Plums*.

5. Yet in gross, this I note; That as *Bacchus amat colles*, and a light ground, so our best *Cider* comes from the hot *Rie-Lands*: In fat *Wheat-Land* it is more sluggish; and in white, stiff *Clay-Land* (as in *Woollhope* in *Hereford-shire*) the common *Cider* retains a thick

thick whey-colour, and not good: Only ſuch as riſeth there (by the diligence or ſome *Art* of the *Inhabitants*) is bright and clear, and ſo lively, that they are apt to challenge the beſt.

6. Some *Cider* mixeth kindly with *Water* in the *Cider-mill*, and will hold out a good ſmall *Wine*, and leſs inflaming, all the following *Summer*. Some *Cider* (as of *Long-hope*, a kind of four *Wood-Land* Country of *Herefordſhire*) will not bear any mixture of *Water*, but ſoon decay, and turn more harſh and ſour: And thus we noted in *France*, ſome courſe *Wines* ſtuck like paint in the *Glaſs*, unwilling to incorporate with the Water: *Vin d' Aye*, and other delicate Wines, did ſpread themſelves more freely, as *gold* is more *ductile* than baſer *metals*.

7. Some would, for a fit, extol the *Cider* of *Pearmains*, ſome of *Pepins*; (and of *Pepins* I have found a congenial *Liquor*, leſs afflicting *ſplenetick* perſons, as in mine own experience I conceived:) And Sir *Henry Lingen* once extolled the *Cider* of *Eleots* (as richly bedewing the Glaſs like the beſt *Canaries*;) and full Hogſheads of the *Stocking-Apple* have been tried amongſt us, but diſappointing our expectation, though perhaps by evil ordering: Yet Mr. *Gritten* highly boaſted a Mixture of *Stocking-Apples* and *May-Pears*, tried (as I take it) by himſelf: After many years trial of thoſe and many other kinds, the *Red-ſtrake* carried the common fame, and from moſt of thoſe reduced admirers. The *Gennet-Moyl Cider* was indeed more acceptable to tender *Palats*; and it will require *Cuſtom* and *Judgment* to underſtand the preferrency of the *Red-ſtrake*, whoſe mordicant ſweetneſs moſt agreeably gives the farewel, endearing the relliſh to all flagrant *Palats*; which both obliges, whets, and ſharpens the *ſtomach* with its maſculine and *winy* vigour; and many thouſands extol it for exceeding the ordinary *French-Wine*: But grant it ſhould not be ſo ſtrong as *Wine*; let me ask how many ſober perſons abroad addict themſelves to meer *Wine*? Then compare *this* with diluted *Wine*, as uſually for temperate men, and then let the trial be made, whether the *Pepin-Cider* or *Red-ſtrake* will retain the *winy* vigour in greater proportion of *Water*. Add to this, That they commonly mingle *Water* in the *Preſs* with *Apples* (a good quantity) whiles they grinde the *Apple*; and the *Water* thus mixed, at that time, does ſo pleaſingly incorporate in the grinding, fermentation, and maturity of Veſſeling, that 'tis quite another and far more pleaſant thing than if ſo much or half ſo much *Water* were mingled in the *Cup* at the drinking time; as *Salt* on the *Trencher* will not give *Beef*, *Pork*, or *Neats-Tongue*, half that ſame relliſh which duly *powder'd* and timely ſeaſon'd.

8. I did once preſer the *Gennet-moyl Cider*, but had only the *Ladies* on my ſide, as gentler for their ſugary *palats*, and for one or two ſober draughts; but I ſaw cauſe to recant, and to confeſs the *Red-ſtrake* to warm and whet the *Stomach*, either for *meat* or more *drink*.

9. The right *Cider-fruit* is far more *ſucculent*, and the *Liquor* more eaſily divides from the *pulpe* of the *Apple*, than in beſt *Table-fruit*,

fruit, in which the juice and the pulp seem friendly to dissolve together on the tongues end.

10. The Liquor of best *Cider-fruit* in the *Apple*, in best season of ripeness, is more brisk and smart than that which proves duller *Cider*: And generally the fiercest *Pears*, and a kind of tamer *Crabs*, (and such was the *Red-strake* called in my memory) makes the more winy *Cider*.

11. *Palladius* denieth *Perry* to bear the heat of *Summer*; but there is a *Pear* in *Bosbury*, and that Neighbourhood, which yields the *Liquor* richer the *second* year than the *first*, and so by my experience very much amended the *third* year: They talk much higher; but that's beyond my account.

12. As *Cider* is for some time a sluggard, so by like care it may be retained to keep the *Memorials* of many *Consuls*; and these smoaky bottles are the *nappy Wine*. My Lord *Scudamore* seldome fails of three or four years; and he is nobly liberal to offer the Trial.

13. As *red Apples*, so *red Pears* (and amongst them the red *Horse-pear* next to the *Bosbury*) have held out best for the stomach and durance: But *Pears* do less gratifie the stomach than *Apples*.

14. The season of *grinding* these *harsh Pears* is after a full maturity, not till they have dropt from the Tree, and there lain under the Tree, or in heaps, a *week*, or thereabouts.

15. And so of *Cider-Apples*, as of *Grapes*, they require full *maturity*, which is best known by their natural *fragrancy*; and then also, as ripe *Grapes* require a few mellowing days, so do all *Apples*, as about a week or little more, so they be not bruised, which soon turns to rottenness; and better sound from the Tree than rotten from the heap; though yet the juice of *Apples* and *Pears* (yea, of *Cherrys* or *Grapes*) is not altogether destroy'd, or quite putrified, as soon as the *Pulp* seems to be *corrupted*; neither haply needs there such curiosity, to cull and pick them so accurately, as some prescribe, though doubtless the cleaner, and less contaminated, the better.

16. That due maurity, and some rest on the heap, does make the *Liquor* taste rather of *Apples* than *winy*, hath no more truth, (if the *Cider* be kept to fit age) than that very *old Cheese* doth taste of a *Posset*.

17. The harsher the *wild-fruit* is, the longer it must lye on heaps; for of the same fruit, suddenly ground, I have tasted good *Ver-juice*; being on heaps till near *Christmas*, all *good-fellows* called it *Rhenish-wine*.

18. The *Grinding* is somewhat considerable, rather too much than too little; here I saw a *Mill* in *Somersetshire* which grinds half a *Hogshead* at a *grist*, and so much the better ground for the frequent rolling.

19.* Soon after *grinding* it should be *prest*, and immediately be put into the *Vessel*, that it may ferment before the *spirits* be dissipated; and then also in fermenting time the *Vent-hole* should not be

* *See for* This, *excellent* directions *in* Mr. Newburghs *preserving of the* surface; C. Taylors *Vessel, and* Dr Smiths *closing of it up.*

be so wide as to allow a prodigal waste of the *spirits*; and as soon as the ferment begins to allay, the *Vessels* should be *filled* of the *same*, and well stopped.

20. Of late 'tis much commended, that before it be *prest* the *Liquor* and *Must* should for four and twenty hours ferment together in a *Vat* for that purpose, covered, as *Ale* or *Beer* in the *Test-vat*, and then tunned up. This is said to enrich the liquor, and to give it somewhat of the *tincture* of some *red Apples*, as I have seen, and very well approved.

21. As *Sulphur* hath some use in *Wines*, so some do lay *Brimstone* on a *ragge*, and by a *wire* let it down into the *Cider-Vessel* and there *fire* it; and when the Vessel is full of the *smoak*, the liquor speedily poured in ferments the better. I cannot condemn this, for *Sulphur* is more kind to the *Lungs* than *Cider*, and the impurity will be discharged in the ferment.

22. *Apples* over-long hoarded before *grinding* will for a long time hold the liquor *thick*; and this liquor will be both pleasant, and as I think, wholesome; and we see some rich *Wines* of the later *Vintage*, and from *Greece*, retain a like crassitude, and they are both *meat* and *drink*.

23. I have seen thick harsh *Cider* the second *Summer* become clear and very richly pleasant; but I never saw clear *acid Cider* recover.

24. *Wheat* or *Leven* is good and kind in *Cider*, as in *Beer*; *Juniper-berries* agree well and friendly for *Coughs*, weak Lungs, and the aged, but not at first for every Palate: The most infallible and undiscerned improver, is *Mustard* a *Pint* to each *Hogshead*, bruised, as for sauce, with a mixture of the same *Cider*, and applied as soon as the Vessel is to be closed after fermenting.

25. *Bottleing* is the next *improver*, and proper for *Cider*; some put two or three *Raisins* into every *Bottle*, which is to seek aid from the Vine. Here in *Somersetshire* I have seen as much as a *Wal nut* of *Sugar*, not without cause, used for this Country *Cider*.

26. *Crabs* do not hasten the decay of *Perry*, but preserve it, as *Salt* preserves *flesh*. But *Pears* and *Crabs* being of a thousand kinds require more *Aphorisms*; this only I would *Note*, that *Land* which refuses *Apples*, is generally civil to *Pears*, and *Crabs* mingled with them, make a rich and wholsome *Cider*, and has sometimes challenged even the best *Red-Strake*.

27. Neither *Wheat*, *Leven*, *Sulphur*, nor *Mustard*, are used but by very few; and therefore are not necessary to make *Cider* last well, for two, three, or four years.

28. The time of drawing *Cider* into *Bottles* is best in *March*, it being then clarified by the *Winter*, and free from the heat of the *Sun*.

29. In drawing, the *best* is neerest the *heart* or middle of the Vessel, as the *Yelk* in the *Egge*.

30. *Red-strakes* are of divers kinds, but the name is in *Herefordshire* appropriated to one kind, which is fair and large, of a high *purple* colour, the smell *Aromatical*, the *Tree* a very *shrub*, soon

ſoon bearing a full burden, and ſeldom or never failing till it decays, which is much ſooner than other *Apple-trees*. 'Tis lately ſpread all over *Hereford-ſhire*; and he that computes ſpeedy return, and true *Wine*, will think of no other *Cider-Apple*, till a better be found.

31. I ſaid the *Red-ſtrake* is a ſmall *ſhrub*, 'tis of ſmall growth where the *Cider* proves richeſt, for ought we have yet ſeen in *Herefordſhire*, *viz.* in light quick land; and if the *land* be very dry, jejune and ſhallow, *that* and other *Cider-fruit* (eſpecially the *Gennet-moyle*) will ſuſpend the ſtore of fruit alternatively every other year; except ſome *Blaſts* or ſurpriſing *Froſts* in the *Spring* alter that *Method*; for two bad years ſeldom come together, very hardly three.

32. In good ſoil, I mean of *common field* (for fat land is not beſt for *Cider*-fruit, but common *arable*) I have ſeen the Trees of good growth, almoſt equalling other *Cider-trees*, the *Apple* larger and ſeldom failing of a good *burthen*: thus in the *Vales* of *Wheat-lands*, in ſtrong *Glebe* or *Clay*, where the *Cider* is not ſo much extolled: but ſtill *Sack* is *Sack*, and *Canary* differs from *Claret*; ſo does the *Red-ſtrake-Cider* of the *Vale* excell any other *Cider* of the foreſaid ſoil, ſuch as is already celebrated for its kindneſs to good *Cider*.

33. Yet this diſtinction of *Soil* requires much *experience*, and great heed, if we inſiſt upon accurate directions; for as *Lauremberg* ſaith, *in pingui ſolo non ſeruntur omnia rectè, neq; in macro nihil.* And for *Gardens*, *Flowers*, and *Orchards*, I would chuſe many times ſuch lands as do not pleaſe the *Husbandman*, either for *Wheat* or ſweet *Paſture*, which are his chief aims; and thus *Lauremberg*, *In Arida & tenui terra félicius proveniunt Ruta, Allium, Petroſelinum, Crocus, Hyſſopus, Capparis, Lupini, Satureia, Thymus*; *Arbores quoq; tenue & macilentum ſolum amant*; *itemq; frutices pleriq*; *Hujuſmodi arbores ſunt, Pomus, Pyrus, Ceraſus, Prunus, Perſica, Cotonea, Morus, Juglans, Corylus, Staphylodendrum, Meſpilus, Ornus, Caſtanea, &c. Frutices, ſcil. Vitis, Berberis, Geniſta, Juniperus, Oxyacantha, Periclymenum, Roſa, Ribeſium, Uva, Spina, Vaccinia, &c.*

34. But here alſo we muſt diſtinguiſh, that *Pears* will bear in a very *ſtony, hungry, gravelly-land*, ſuch as *Apples* will not bear in; and I have ſeen *Pears* bear in a tough binding hungry *Clay*, when *Apples* could not ſo well bear it (as the ſmooth rinds of the *Pear-trees*, and the *Moſſie* and *cankered rinds* of the *Apple-trees* did prove) the *root* of a *Pear-tree* being it ſeems more able to pierce a ſtony and ſtiff ground. And *Cherries*, *Mulberries* and *Plums* can rejoyce in a richer ſoil, though by the ſmalneſs of the *Roots*, the ſhallower ſoil will ſuffice them. And the *Quinces* require a deeper ground, and will bear with ſome degrees of hungry land, if they be ſupplied with a due meaſure of *ſuculency*, and neighbouring moiſture; and the other *ſhrubs*, according to the ſmalneſs of their *roots*, do generally bear a thinner land. I have ſeen a *ſoil* ſo much too rank for *Apples* and *Plums*, that all their fruits from year to year were

always *worm-eaten*, till their lives were forfeited to the fire.

35. To take up from these *Curiosities*, the most useful result to our purpose; we have always found these *Orchards* to grow best, last longest, and bear most, which are frequently tilled for *Barley*, *Wheat*, or other *Corn*, and kept (by *Culture* and seasonable *rest*) in due strength to bear a full *crop*. And therefore, whereas the *Red-strake* might otherwise without much injury be planted at *fifteen* or *twenty* foot *distance*, and the best *distance* for other *Cider-fruit* hath heretofore been reputed *thirty*, or *two* and *thirty* foot; very good husbands do now allow in their largest *Inclosures* (as of 20, 40 or 100 *Acres*) *fifty* or *sixty* foot distance, that the Trees may not much hinder the *Plow*, and yet receive the benefit of *Compost*; and a *Horse-teem* well governed will (without any damage of danger) *plow* close to the *Trees*.

36. In such soil as is here required, namely of good *Tillage*, an *Orchard* of *graffed Red-strakes* will be of good growth, and good burthen, within *ten* or *twelve years*, and branch out with good store to begin an encouragement at three years *graffing*; and (except the land be very unkind) will not yield to any decay within *sixty* or *eighty years*, which is a mans age.

37. In some *sheets* I rendred many Reasons against Mr. *Austin* of *Oxford*, why we should prefer a peculiar *Cider-fruit*, which in *Herefordshire* are generally called *Musts*; (so we name both the *Apple* and the *Liquor*, and *Pulpe* as mingled together in the confusion) as from the Latine *Mustum*. *White-Musts* of divers kinds, *Red-cheek'd* and *Red-strak'd Musts* of several kinds, *Green-Musts* called also *Green-fillet*, and *Blew-spotted*: Why, I say, we should prefer them for *Cider*, before *Table-fruit*, as *Pepins*, *Pearmains*, *&c.* And I do still insist on them: 1. The Liquor of these *Cider-fruits* and of many kinds of austere fruit, which are no better than a sort of full succulent *Crabs*, is more sprightful, brisk and *winy*. For Essay, I sent up many *bottles* to *London*, that did me no discredit. Secondly, One bushel of the *Cider-fruit* yields twice or thrice as much liquor. Thirdly, The *Tree* grows more in three or four years than the other in ten years, as I oft times remarked. Fourthly, The *Tree* bears far greater store, and doth more generally escape *Blasts* and *Frosts* of the *Spring*. I might add, that some of these, and especially such *Pears* as yield the best *Perry*, will best escape the hand of the *Thief*, and may be trusted in the open field.

38. By the *first*, *second* and *fourth* of these Reasons, I must exclude the *Gennet-Moyle* from a *right Cider fruit*, it being dry and very apt to take *frosty blasts*; yet it is no *Table-fruit*, but properly a baking fruit, as the ruddy colour from the *Oven* shews.

39. I said that the right *Cider-fruit* generally called *Musts*, and deserving the *Latine* name *Mustum*, is of divers *kinds*; and I have need to note more expressly that there is a *Red-strak'd Must* (as I have often seen) but not generally known, that is quite differing from the famous *Red-strake*, being much less, somewhat oblong and like some of the white *Musts* in shape, and full of a very good *winy* liquor. I could willingly name the *persons* and *place* where the

the distinct kinds are best known: it was first shewed me by *John Nash* of *Asperton* in *Herefordshire*; and for some years they did in some places distinguish a *Red-Strake*, as yielding a richer *Red-strak'd Cider* of a more *fulvous* or *ruddy* colour; but this difference, as far as I could find, is but a choice of a better *insolated* or ruddy fruit of the best kind, as taken from the *South-part* of the *Tree*, or from a *soil* that renders them richer. But my Lord *Scudamore*'s is safely of the best sort; and M. *Whingate* of the *Grange* in *Dimoc*, and some of *King's-capel*, do best know these and other differences, *Straked-Must*, *right Red-strake*, *Red-RedStrake*, &c.

40. The greenish *Must*, (formerly called in the *Language* of the *Country*, the *Green-fillet*) when the *Liquor* is of a kindly ripeness, retains a *greeness* equal to the *Rhenish-glass*; which I note for them that conceive no *Cider* to be fit for use till it be of the *colour* of *old Sack*.

41. To direct a little more *caution*, for enquiry of the right *Red-strake*, I should give notice that some *Moneths* ago, M. *Philips* of *Mountague* in *Somersetshire*, shewed me a very fair large *Red-strake Apple*, that by smell and sight seemed to me and to another of *Herefordshire* then with me to be the best *Red-strake*; but when we did cut it, and taste it, we both denied it to be *right* (the other with much more confidence than my self) but M. *Philips* making *Cider* of it, this week invited me to it, assuring that already it equals or resembles *High-country-wines*. It had not such plenty of juice as our *Red-strakes* with us, and it had more of the pleasantness of *Table-fruit*, which might be occasioned, for ought I know, by the purer and quicker soil. This *Apple* is here call'd *Meriot-Tsnot*, and great store of them are at *Meriot*, a *Village* not far distant: Possibly, this *Meriot* may prove to be the *Red-Strake* of *Somerset-shire*, when they shall please to try it apart with equal diligence and constancy as they do in *Hereford-shire*: This *fruit* is of a very lovely *hue*, and by some conceived to be of Affinity to the *Red-Jersey-Apple*, which is reported to *tinge* so deeply: In truth, there can hardly be a deeper *Purple*, than is our right *Herefordshire Red-Strake*, having a few *streaks* towards the *Eye*, of a *dark* colour, or *Orange-tawny* intermingled: But, 'tis no wonder if an *Apple* should change its *Name* in travelling so far beyond the *Severn*, when even in this *Country*, most sorts of *Apples*, and especially, *Cider-fruit*, loseth the Name in the next *Village*.

42. I may now ask why we should talk of other *Cider-fruit* or *Perry*, if the best *Red-strake* have all the aforesaid pre-eminencies of richer and more *winy* liquor, by half sooner an *Orchard*, more constantly bearing, *&c.* An *Orchard* of *Red-strakes* is commonly as full of fruit at *ten* years, as other *Cider-fruit* at *twenty* years, or as the *Pepin* and *Pearmain* at *thirty* or thereabout.

43. To this may be Answered, that all *soils* bear not *Apples*, and to some *soils* other *Apples* may be more kind, and if we be driven to *Perry*, much we may say both in behalf of the *Perry*, and of the *Pear*; of the *fruit*, and of the *Tree*; It is the goodlier Tree for a *Grove*, to shelter a house and walks from *Summers heat* and *Win-*

ters cold Winds, and far more *lasting*; the pleasanteſt *Cider-pear* of a known name amongſt them, is the *Horſe-pear*. And it is much argued, whether the *White-horſe-pear*, or the *Red-horſe-pear* be the better; where *both* are *beſt*, within two *Miles* they differ in judgment. The *Pear* bears almoſt its *weight* of ſprightful *winy Liquor*; and I always preferred the *tawny* or *ruddy Horſe-pear*, and generally *that colour* in all *Pears* that are proper for *Perry*.

44. I rejected *Palladius* againſt the durableneſs of *Perry*; his words are, *Hyeme durat, ſed prima aceſcit æſtate, Tit.* 25. *Febr.* poſſibly ſo of common *Pears*, and in hotter Countries; but from good *Cellars* I have taſted a very brisk lively and *winy liquor* of theſe *Horſe-pears* during the end of *Summer*; and a *Bosbury-pear* I have named and often tried, which without *bottleing*, in common *Hogſheads* of vulgar and indifferent *Cellars*, proves as well pleaſanter as richer the *ſecond* year, and yet alſo better the *third* year. A very honeſt, worthy and witty *Gentleman* of that neighbourhood would engage to me, that in good *Cellars*, and in careful cuſtody, it paſſeth any account of decay, and may be *heightned* to a kind of *Aqua-vitæ*. I take the information worthy the *ſtile* of our modern *improvements*.

The *Pear-tree* grows in *common fields* and wild *ſtony ground*, to the largeneſs of bearing one, two, three or four *Hogſheads* each year.

45. This *Bosbury-tree*, and ſuch generally that bear the moſt laſting *Liquor* and *winy*, is of ſuch *unſufferable* taſte, that hungry *Swine* will not *ſmell* to it; or if *hunger* tempt them to taſte, at firſt cruſh they ſhake it out of their *mouths*; (I ſay not this of the *Horſe-pear*) and the Clowns call other *Pears*, of beſt Liquor, *Choak-pears*, and will offer money to ſuch as dare adventure to taſte them, for their *ſport*; and their *mouths* will be more *ſtupified* than at the root of *Wake-robin*.

46. A row of *Crab-trees* will give an improvement to any kind of *Perry*; and ſince *Pears* and *Crabs* may be of as many *kinds* as there are *kernels*, or different kinds or mixtures of *ſoils*; in a general *Character* I would prefer the largeſt and fulleſt of all auſtere juices.

47. M. *Lill* of *Mark-hill* (aged about 90 years) ever obſerved this Rule, to graff no *wild Pear-tree* till he ſaw the *fruit*; if it proved *large*, *juicy*, and *brisk*, it failed not of good *Liquor*. But I ſee cauſe to ſay, that to *graff* a young tree with a riper *graff*, and *known excellency*, is a ſure gain and haſtens the return.

48. M. *Speke* (laſt *high Sheriff* of *Somerſetſhire*) ſhewed me in his *Park* ſome ſtore of *Crab-trees*, of ſuch huge *Bulk*, that in this fertile year he offered a *wager*, that they would yield one or two *Hogſheads* of *Liquor* each of them; yet were they ſmall dry *Crabs*.

49. I have ſeen ſeveral ſorts of *Crabs* (which are the natural *Apple*, or at worſt but the *Wild-Apple*) which are as large as many ſorts of *Apples*, and the Liquor *winy*.

50. I have diſclaimed the *Guſt* of *Juniper-berries* in *Cider*; I tried

tried it only *once* for *my ſelf*, and drank it before *Chriſtmas*: poſſibly in more time the relliſh had been ſubdued or improved, as of *Hops* in *ſtale Beer*, and of *Rennet* in good *Parmaſan*. Neither was the *Guſt* to me otherwiſe unpleaſant than as *Anniſe-ſeeds* in *Bread*, rather *ſtrange* than *odious*; and by cuſtom made grateful, and it did haſten the *clarification*, and increaſe the briskneſs to an endleſs *ſparkling*: thus it indulgeth the *Lungs*, and nothing more *cheap*; where *Juniper* grows a *Girl* may ſpeedily fill her lap with the *Berries*.

If *Barbados* Ginger be good, cheaper, and a more pleaſant preſerver of Beer, it muſt probably be moſt kind for *Cider*: For firſt, of all the improvers that I could name, bruiſed *Muſtard* was the beſt; and this *Ginger* hath the ſame quick, mordicant vigour, in a more noble and more *Aromatique* fragrancy. Secondly, *Cider* (as I oft complain) is of a ſluggiſh and ſomewhat windy nature; and for ſome *Moneths* the beſt of it is chain'd up with a cold *ligature*, as we fancy the fire to be lock'd up in a cold *Flint*. This will relieve the *priſoner*. And thirdly, will aſſiſt the *winy* vigour for them that would uſe it inſtead of a ſparkling *VVine*. Fourthly, 'Tis a good ſign of much kindneſs, and great friendſhip: it will both enliven the *ferment* for ſpeedier maturity, and alſo hold it out for more duration, both which offices it performs in Beer.

51. *Cider* being *windy* before maturity, ſome that muſt not wait the leiſure of beſt *Seaſon* do put ſprigs of *Roſe-mary* and *Bays* in the *Veſſel*; the *firſt* good for the *head*, and not unpleaſant; the *ſecond*, an *Antidote* againſt *Infections*; but leſs pleaſant till time hath incorporated the Taſtes.

52. And why may we not make mention of all theſe *Mixtures*, as well as the *Ancients* of their *Vinum Marrubii*, *Vinum Abrotonites*, *Abſynthites*, *Hyſſopites*, *Marathites*, *Thymites*, *Cydonites*, *Myrtites*, *Scillites*, *Violaceum*, *Sorbi*, *&c.*

53. And, for *mixtures*, I think we may challenge the *Ancients*, in naming the *Red-raſpy*; of which there is in this County a *Lady* that makes a *Bonella*, the beſt of *Summer drinks*. And more yet if we name the *Clove-july-flower*, or other *July-flowers*, a moſt grateful *Cordial*, as it is infuſed by a *Lady* in *Staffordſhire*, of the Family of the *Devereux*'s, and by ſome *Ladies* of this Country.

54. I could alſo give ſome account of *Cherry-wine*, and Wine of *Plums*; the *laſt* of which (in the beſt Eſſay that I have yet ſeen) is hardly worthy to be named: But, I conceive, and have ground for it, that ſome good *Liquor* and *Spirits* may be drawn from ſome ſorts of them, and in *quantity*: And the vaſt ſtore of *Cherrys* in ſome places, under a *peny* the *pound*, and of *Plums* that bend the *Trees* with their *burdens*, and their expedite growth makes it cheap enough, and as in the other, ſo in theſe, the large *Engliſh* or *Dutch* ſharp *Cherry*, makes the *Cherry-wine*, and the full black, tawny *Plum*, as big as a *Walnut* (not the kind of *Heart-Cherrys*, nor the *Plum* which divides from the *ſtone*) make the *Wine*. Their cheapneſs ſhould recommend them to more general uſe at *Tables*, when *dryed* like *Prunellas* (an eaſie art) and then wholeſomer.

55. To

55. To return for *Red-ſtrake*; 'tis a good drink as ſoon as well *fermented*, or within a *Moneth*, better after ſome *Froſts*, and when *clarified*; rich *Wine*, when it takes the *colour* of *old Sack*. In a good *Cellar* it improves in *Hogſheads* the ſecond year; in *Bottles* and *ſandy Cellars* keeps the *Records* of late *revolutions* and old *Majoralties*. *Quære* the manner of laying them up in *ſand-houſes*.

56. I tried ſome *Bottles* all a *Summer* in the bottom of a *Fountain*; and I prefer that way where it may be had. And 'tis ſomewhat ſtrange if the Land be neither dry for a *ſand-houſe*, nor *fountainous* for this better expedient. When *Cider* is ſettl'd, and altogether, or almoſt *clarifi'd*, then to make it *ſprightful* and *winy*, it ſhould be drawn into well *cork'd* and well bound *bottles*, and kept ſome time in *ſand* or water; the longer the better, if the kind be good. And *Cider* being preſerved to due *age*, *bottl'd* (and kept in cool places, *conſervatories*, and *refrigerating* ſprings) it does almoſt by time turn to *Aqua-vitæ*; the *Bottles* ſmoak at the opening, and it catches *flame* ſpeedily, and will burn like *ſpirit* of *VVine*, with a fiery taſte; and it is a laudable way of trying the vigour of *Cider* by its promptneſs to *burn*, and take *fire*, and from the quantity of *Aqua-vitæ* which it yields. *Cider* affords by way of *Diſtillation*, an incomparable and uſeful *Spirit*, and that in ſuch plenty, as from *four Quarts*, a full *Pint* has been extracted.

57. I muſt not preſcribe to other *Palats*, by aſſerting to what degree of *Perfection* good *Cider* may be raiſed, or to compare it with *VVines*: But when the late *King* (of bleſſed memory) came to *Hereford* in his diſtreſs, and ſuch of the *Gentry* of *VVorceſterſhire* as were brought thither as *Priſoners*; both *King*, *Nobility*, and *Gentry*, did prefer it before the beſt *VVines* thoſe parts afforded; and to my knowledge that *Cider* had no kind of *Mixture*. Generally all the *Gentry* of *Herefordſhire* do abhor all mixtures.

Yet if any man have a deſire to try *concluſions*, and by an harmleſs *Art* to convert *Cider* into *Canary-wine*; let the *Cider* be of the former year, *Maſculine* and in full body, yet pleaſant and well taſted: into ſuch *Cider* put a *ſpoonful*, or *ſo*, of the *ſpirit* of *Clary*, it will have ſo much of the *race* of *Canary*, as may deceive ſome who pretend they have diſcerning *Palats*.

SIR

Sir PAUL NEIL's DISCOURSE OF CIDER.

My Lord,

IN obedience to the *Commands* of this *Honourable Society*, I have at length endeavoured to give this brief *Account* of that little which I know concerning the *Ordering* of *Cider*; and in *that* I shall propound to my self *six* things.

First, To shew that *Cider* made of the best *Eating-apples* must needs be *once* the best; (that is to say) the pleasantest *Cider*.

Secondly, That hitherto the general opinion hath been otherwise, and that the reason of that mistake was the not apprehending the true cause why the *Pepin-cider*, *&c.* did not retain its sweetness, when the *Hard-apple-cider* did.

Thirdly, What is the true cause that *Pepin-cider*, used in the ordinary method, will not retain its sweetness.

Fourthly, How to cure that *evil* in *Pepin-cider*.

Fifthly, A probable conjecture, how in some degree by the same *Method* to amend the *Hard-apple-cider*, and *French-Wine*.

Sixthly, That what is here propounded cannot chuse but be *wholsome*, and may be done to what degree every mans *Palate* shall wish.

Having now told your *Lordship*, what I will endeavour to do before I enter upon it, I must declare what I will not in the least pretend to do.

1. I do not pretend to any thing concerning the *planting* and *graffing* of *Trees*, &c.

Nor what *Trees* will sooneſt *bear* or *last* longest.

Nor what *sorts* of *Trees* are the best *bearers*, and may with least danger grow in *Common fields*.

Nor what *sort* of *fruit* will yield the greatest store of *Cider*.

Nor what *Cider* will *keep* the longest, and be the strongest, and wholesomest to *drink* constantly with *meat*.

The

The only thing I shall endeavour, being to prescribe a way to make a sort of *Cider* pleasant and quick of taste, and yet wholesom to *drink*, sometimes, and in a moderate proportion: For, if this be an *Heresie*, I must confess my self guilty; that I prefer *Canary-wine*, *Verdea*, the pleasantest *Wines* of *Greece*, and the *High-country-wines* before the *harsh Sherries*, *Vin de Hermitage*, and the *Italian* and *Portugal* rough *Wines*, or the best *Graves-wines*; not at all regarding that I am told, and do *believe*, that these *harsh wines* are more comfortable to the *stomack*, and a *Surfeit* of them less *noxious*, when taken; nor to be taken but with drinking greater quantities than can with safety be taken of those other pleasant *Wines*: I satisfying my self with this, that I like the *pleasant Wines* best; which yet are so wholesom, that a man may drink a moderate quantity of them without prejudice.

Nor shall I at all concern my self, whether this sort of *Cider* I pretend to is so *vinous* a liquor; and consequently will yield so much *spirit* upon *Distillation*, or so soon make the *Country-man* think himself a *Lord*, as the *Hard-apple-cider* will do: nor whether it will *last* so long; for it is no part of my *design* to perswade the *World* to lay by the making of *Hard-apple-cider*; but rather in a degree to shew how to improve that in point of pleasantness, and that by the making and rightly ordering of *Cider* of the best *Eating-Apples*; as *Golden-pepins*, *Kentish-pepins*, *Pear-mains*, *&c.* there may be made a more pleasant *liquor* for the time it will last, than can be produced from those *Apples* which I call *Hard-Apples*, that is to say, *Red-strakes*, *Gennet-moyles*, the *Bromsbury-Crab*, &c. which are so *harsh* that a *Hog* will hardly eat them.

Nor shall I at all meddle with the making of *Perry*, or of any mixed drink of the juyce of *Apples* and *Pears*; though possibly what I shall say for *Cider* may be aptly applied to *Perry* also.

For the *first* particular, I *asserted* that the best *Apples* would make the pleasantest, which in my sence is the best *Cider*; (and I account those the best Apples, whose juyce is the pleasantest at the time when first pressed, before fermentation) I shall need (besides the experience of the last *ten* years) only to say, that it is an undeniable thing in all *Wines*, that the pleasantest *Grapes* make the richest and pleasantest *Wines*; and that *Cider* is really but the *Wine* of *Apples*, and not only made by the same way of *Compression*; but left to it self hath the same way of *Fermentation*; and therefore must be liable to the same measures in the choice of the materials.

To my second *Assertion*, that this truth was not formerly owned, by reason that in *Herefordshire*, and those Countries where they abound both with *Pepins* and *hard-apples* of all sorts, they made *Cider* of both sorts, and used them alike; that is, that as soon as they *ground* and *pressed* the *Apples* and *strained* the *Liquor*, they put it into their *Vessels* and there let it lye till it had wrought, and afterwards was setled again and *fined*; as not thinking it wholesom to drink till it had thus (as they call it) *purg'd* it self;

and

and this was the frequent use of most men in the more *Southern* and *Western* parts of *England* also. Now when *Cider* is thus used, it is no wonder that when they came to broach it, they for the most part found their *Pepin-cider* not so pleasant as their *Moyle* or *Red-strake-cider*; but to them it seemed a wonder, because they did not know the *reason* of it (which shall be my next work to make out) for till they knew the *reason* of this *effect*, they had no cause but to think it was the nature of the several *Apples* that produced it; and consequently to prefer the *Hard-Apple-cider*, and to use the other Apples (which were good to eat *raw*) for the *Table*: which was an use not less necessary, and for which the *hard-apples* were totally improper.

To my *third* Assertion, which is, that in *Herefordshire* they knew not what was the true cause why their *Pepin-cider* (for by that name I shall generally call all sorts of *Cider* that is made of *Apples* good to eat raw) was not, as they used it, so good as the *Cider* made of *hard-apples* (for by that name, for brevities sake, I shall call the *Cider* of *Moyle*, *Red-strake*, and all other sorts of *harsh Apples*, not fit to eat raw.) *First*, I say, for all *liquors* that are *Vinous*, the cause that makes them sometimes harder or less pleasant to the taste, than they were at the first pressing, is the too much *fermenting*: If *Wine* or *Cider* by any *accidental* cause do *ferment* twice, it will be harder than if it had *fermented* but once; and if it *ferment* thrice, it is harder and worse than if it had *fermented* but twice: and so onward, the oftner it *ferments* and the longer it *ferments*, it still grows the harder. This being laid as a *foundation*, before we proceed further we must first consider what is the cause of *fermentation* in *Wine*, *Cider*, and all other *Vinous Liquors*. Which (in my poor opinion) is the gross part of the *Liquor*, which scapes in the straining of the *Cider* (for in making of *Wine*, I do not find that they use the curiosity of straining) and which is generally known by the name of the *Lee* of that (*Wine* or) *Cider*. And this *Lee* I shall, according to its thickness of parts, distinguish into the *gross Lee*, and the *flying Lee*.

Now, according to the old method of making and putting up of *Cider*, they took little care of putting up *only* the clear part of the *Cider* into their Vessels or *Cask*; but put them up thick and thin together, not at all regarding this *separation*; for experimentally they found that how thick soever they put it up, yet after it had throughly wrought or *fermented* and was setled again, it would still be clear; and perchance that which was put up the soonest after it was pressed and the thickest, would, when the *fermentation* was over, be the clearest, the briskest, and keep the longest. This made them confidently believe that it was not only not inconvenient to put it up quickly after the *pressing*, but in some degree necessary also to put it up soon after the *pressing*, so that it might have so much of the *Lee* mixed with it, that it might certainly, soon, and strongly put it into a *fermentation*, as the only means to make it *wholsom*, *clean* and *brisk*; and when it ei-

ther did not (or that they had reaſon to doubt) that it would not work or *ferment* ſtrongly enough, they have uſed to put in *Muſtard* or ſome other thing of like nature to increaſe the *fermentation*.

Now that which in *Cider* of *Pepins* hath been a cauſe of greater *fermentation* than in *Cider* of *Hard-Apples*, being both uſed after the former method, is this, that the *Pepins* being a ſofter fruit are in the *Mill* bruiſed into ſmaller *particles* than the harder ſorts of *Apples*; and conſequently more of thoſe ſmall parts paſs the ſtrainer in the *Pepin-Cider* than in the *Cider* of *Hard-apples*, which cauſeth a ſtronger *fermentation*, and (according to my former *principle*) a greater loſs of the native ſweetneſs than in that of *Hard-apple-cider*; and not only ſo, but the *Lee* of the *Hard-apple-cider* being compounded of greater *particles* than the *Lee* of the *Pepin-cider*, every individual *particle* is in it ſelf of a greater weight than the particles of the Lee of the *Pepin-cider*; and conſequently leſs apt to riſe upon ſmall motions, which produceth this effect; that when the *fermentation* of the *Hard-apple cider* is once over, unleſs the Veſſel be ſtirred, it ſeldom falls to a ſecond *fermentation*; but in *Pepin-cider* it is otherwiſe: For if the *groſs Lee* be ſtill remaining with the *Cider*, it needs not the motion of the Veſſel to cauſe a new *fermentation*, but every motion of the *Air* by a change of *weather* from dry to moiſt will cauſe a new *fermentation*, and conſequently make it work till it hath deſtroyed it ſelf by loſing its native ſweetneſs. And this alone hath been the cauſe, why commonly when they *broach* their *Pepin-cider* they find it ſo unpleaſant, that generally the *Hard-apple-cider* is preferred before it, although at firſt it was not ſo pleaſant as the *Pepin-cider*. Yet after this miſchief hath prevailed over the *Pepin-cider*, it is no wonder to find the *Hard-apple-cider* remaining not only the ſtronger, but even the more pleaſant taſted. This to me ſeems ſatisfactory for the diſcovery of the *cauſe*, why in *Herefordſhire* the *Hard-apple-cider* is preferred before the *Pepin cider*. But perhaps it may by ſome be *objected*, that they have before the *ten years*, in which you pretend you found this to be the cauſe of ſpoiling the *Pepin-cider*, been in *Herefordſhire*, and taſted the beſt *Cider* that *Country* did afford; and yet it was not like the *Pepin-cider* they had before then taſted in other parts. To this I do *anſwer*, at preſent, briefly, that by ſome miſtake, or chance, the maker of this *Pepin-cider*, which proved good, had done that, or ſomewhat like that, which under the next *Aſſertion* I ſhall ſet down, as a *Method* to cure the inconveniences which happen to *Pepin-cider*, by the ſuffering it to *ferment* too often, or too ſtrongly; but till that be explained it would be improper to ſhew more fully what theſe particular *accidents* might poſſibly be, which (without the intention of thoſe perſons which made the *Cider*) cauſed it to prove much better than their expectation, or indeed better than any could afterwards make: they poſſibly aſſigning the goodneſs of that *Cider* to ſomewhat that was not really the *cauſe* of that *effect*.

To

To justifie my fourth *Assertion*, and shew a *Method* how to *cure* the inconveniency which happens to *Pepin-cider* by the over-working, I must first take notice of some things which I have been often told concerning *Wine*, and which indeed gave me the light to know what was the *cause* which had made *Pepin-cider* that had wrought long, *hard* when it came to be *clear* again. The thing I mean, is, that in divers *parts*, and even in *France* they make *three sorts* of *Wine* out of one and the same *Grapes*; that is, they first take the *juice* of the *Grapes* without any more pressing than what comes from their own weight in the *Vat*, and the bruising they have in putting into Vessel, which causeth the ripest of those *Grapes* to break, and the *juice* without any pressing at all makes the pleasantest and most delicate *Wine*: And if the *Grapes* were *red*, then is this first *Wine* very *pale*. The second sort they press a little, which makes a *redder Wine*, but neither so pleasant as the first, nor so harsh as the last, which is made by the utmost pressing of the very *skins* of the *Grapes*, and is by much more harsh, and of deeper colour than either of the other two. Now I presume the *cause* of this (at least in part) to be, that in the first sort of *Wine*, which hath little of the substance, beside the very *juice* of the *Grape*, there is little *Lee*, and consequently little *fermentation*; and because it doth not work long, it loseth but little of the original sweetness it had: The second sort being a little more pressed hath somewhat more of the substance of the *Grape* added to the *juice*; and therefore having more of that part which causeth *fermentation* put with it, *ferments* more strongly, and is therefore, when it hath done working, less pleasant than the first sort, which wrought less. And for the same reason the *third sort* being most of all pressed, hath most of the substance of the *Grape* mingled with the *Liquor*, and worketh the longest: but at the end of the working when it *settles* and is *clear*, it is much more harsh than either of the two first sorts. The thought of this made me first apprehend that the *substance* of the *Apple* mingled with the *juice*, was the cause of *fermentation*, which is really nothing else but an endeavour of the *Liquor* to free it self from those *Heterogeneous* parts which are mingled with it: And where there is the greatest proportion of those *dissimilar* parts mingled with the *Liquor*, the endeavour of *Nature* must be the stronger, and take up more time to perfect the *separation*: which when finished leaves all the *Liquor* clear, and the gross parts settled to the bottom of the *Vessel*; which we call the *Lee*. Nor did this apprehension deceive me; for when I began (according to the *Method* which I shall hereafter set down) to separate a considerable part of the *Lee* from the *Cider* before it had *fermented*, I found it to retain a very great part of its original sweetness, more than it would have done if the *Lee* had not been taken away before the *fermentation*; and this not once, but constantly for *seven years*.

Now the *Method* which I used, was this: When the *Cider* was first strained, I put it into a great *Vat*, and there let it stand *twenty four hours* at least (sometimes more, if the *Apples* were more ripe

than ordinary) and then at a *tap* before prepared in the *Veſſel* three or four *inches* from the bottom I drew it into *pails*, and from thence filled the *Hogſhead* (or leſſer *Veſſel*) and left the greateſt part of the *Lee* behind; and during this time that the *Cider* ſtood in the *Vat*, I kept it as cloſe covered with *hair-clothes* or *ſacks* as I could; that ſo too much of the *ſpirits* might not evaporate.

Now poſſibly I might be asked why I did not, ſince I kept it ſo cloſe in the *Vat*, put it at firſt into the *Veſſel?* To which I anſwer, that had I put it at firſt into the *Veſſel*, it would poſſibly (eſpecially if the *weather* had chanced to prove wet and warm) have begun to *ferment* before that time had been expired; and then there would have been no poſſibility to have ſeparated any part of the *groſs Lee*, before the *fermentation* had been wholly finiſhed; which keeping it only covered with theſe clothes was not in danger: For, though I kept it warm in ſome degree, yet ſome of the *ſpirits* had ſtill liberty to *evaporate*; which had it been in the *Hogſhead* with the *Bung* only open, they would not ſo freely have done; but in the firſt 24 *hours* it would have begun to *ferment*, and ſo my deſign had been fully loſt: For thoſe *ſpirits* if they had been too ſtrongly *reverberated* into the *Liquor*, would have cauſed a *fermentation* before I could have taken away any part of the *groſs Lee*. For the great *myſtery* of the whole thing lies in this, to let ſo many of the *ſpirits* evaporate, that the *liquor* ſhall not *ferment* before the *groſs Lee* be taken away; and yet to keep *ſpirits* enough to cauſe a *fermentation* when you would have it. For if you put it up as ſoon as it is *ſtrained*, and do not let ſome of the *ſpirits* evaporate, and the *groſs Lee* by its weight only to be ſeparated without *fermentation*, it will *ferment* too much and loſe its ſweetneſs; and if none be left, it will not *ferment* at all; and then the *Cider* will be dead, flat and ſoure.

Then after it is put into the *Veſſel*, and the *Veſſel* fill'd all but a little (that is, about a *Gallon* or thereabout) I let it ſtand (the *Bung-hole* being left only covered with a *paper*, to keep out any duſt or filth that might fall in) for 24 *hours* more; in which time the *groſſeſt* part of the *Lee* being formerly left in the *Vat*, it will not *ferment*, but you may draw it off by a *Tap* ſome two or three inches from the bottom of the *Veſſel*, and in that ſecond *Veſſel* you may ſtop it up, and let it ſtand ſafely till it be fit to *Bottle*; and poſſibly that will be within a day or more: but of this time there is no certain meaſure to be given; there being ſo many things that will make it longer, or leſs while before it be fit to *bottle*. As for *Example*, If the *Apples* were *over-ripe* when you ſtamped them, or ground them in the *Mill*, it will be the longer before it will be clear enough to *Bottle*; or if the *weather* prove to be warmer or moiſter than ordinary: or that your *Apples* were of ſuch kinds, as with the ſame force in the ſtamping or grinding they are broken into ſmaller *particles* than other *Apples* that were of harder kinds.

Now, for knowing when it is fit to *Bottle*, I know no certain *Rule* that can be given, but to *broach* the *Veſſel* with a ſmall *Piercer*, and in that *hole* fit a *peg*, and now and then (two or three times in a day)

day) draw a little, and see what fineness it is of; for when it is *bottled* it must not be perfectly *fine*; for if it be so, it will not *fret* in the *bottle*, which gives it a fine quickness, and will make it *mantle* and sparkle in the *glass*, when you pour it out: And if it be too thick when it is *bottled*, then, when it hath stood some time in the *bottles* it will *ferment* so much that it may possibly either drive out the *Corks*, or break the *bottles*, or at least be of that sort (which some call *Potgun-drink*) that when you open the *bottles* it will fly about the house, and be so *windy* and *cutting* that it will be inconvenient to drink: For the right *temper* of *Bottle-Cider* is, that it *mantle* a little and *sparkle* when it is put out into the *glass*; but if it *froth* and *fly*, it was *bottled* too soon: Now the *temper* of the *Cider* is so nice, that it is very hard when you *bottle* it to foretell which of these two conditions it will have: but it is very easie within a few days after (that is to say, about a *week*, or so) to find its *temper* as to this point. For first, if it be *bottled* too soon; by this time it will begin to *ferment* in the *Bottles*, and in that case you must open the *Bottles*, and let them stand open two or three *minutes*, that that abundance of *spirits* may have *Vent*, which otherwise kept in would in a short time make it of that *sort* I called before *Potgun-drink*; but being let out, that danger will be avoided, and the *Cider* (without danger of breaking the *bottles*) will *keep* and *ferment*, but not too much. Now this is so easie a *remedy*, that I would advise all men rather to erre on the hand of *bottling* it too soon, than let it be too *fine* when they *bottle* it; for if so, it will not *fret* in the *bottle* at all; and consequently, want that *briskness* which is desirable.

Yet even in this case there is a *Remedy*, but such a one as I am always very careful to avoid, that so I may have nothing (how little soever) in the *Cider* but the *juice* of the *Apple*: But the *remedy* is, in case you be put to a necessity to use it, that you open every *bottle* after it hath been *bottled* about a week or so, and put into each *bottle* a little piece of *white Sugar*, about the bigness of a *Nutmeg*, and this will set it into a little *fermentation*, and give it that *briskness* which otherwise it would have wanted. But the other way being full as easie, and then nothing to be added but the juice of the *Apple* to be simply the substance of your *Cider*, I chuse to prefer the errour of being in danger to *bottle* the *Cider* too soon, rather than too late: Nay sometimes in the *bottling* of one and the same *Hogshead* (or other *Vessel*) of *Cider*, there may the first part of it be too *fine*; the second part *well*; and the last not *fine* enough: and this happens when it is *broached* first *above* the *middle*, and then *below*; and then when it begins to run low, *tilted* or raised at the further end, and so all drawn out. But to avoid this inconvenience, I commonly set the *bottles* in the order they were filled, and so we need not open all to see the condition of the *Cider*; but trying one at each end, and one in the middle, will serve the turn: And to prevent the inconveniency, *broach* not at all above the *middle*, nor too *low*; and when you have drawn all that will run at the *Tap*, you may be

secure

ſecure it is ſo far of the ſame *temper* with the firſt *bottle*. And then *tilt* the *Veſſel*; but draw no more in three or four hours at the leaſt after, and ſet them by themſelves, that ſo, if you pleaſe, you may three or four days after pour them off into other *bottles*, and leave the *groſs* behind: And by this means though you have a leſs number of *bottles* of *Cider* than you had, yet this will continue good, and neither be apt to *fly*, nor have a *ſediment* in the *bottle*, which after the firſt *glaſs* is filled will render all the reſt of the *bottle* thick and muddy.

By all this which I have ſaid, I think it may be made out that thoſe perſons which I mentioned in the end of the laſt *Paragraph*, that ſometimes had *Pepin-cider* better than ordinary, and indeed then they could make again, were beholding to *chance* for it; either that their *Apples* were not ſo full ripe at that as at *other* times, and ſo not bruiſed into ſo ſmall parts; but the *fermentation* was ended in the *Veſſel*, and the *Lee* being then *groſs* ſetled before the *Cider* had *fermented* ſo long as to be hard.

Or elſe, by ſome *Accident* they had not put it ſo ſoon into the *Veſſel*, but that in part it was ſetled before they put it up, and the groſſeſt part of the *Lee* left out of the *Veſſel*.

Or elſe, the *Bung* being left *open* ſome part of the *ſpirits* evaporated; and that made the *fermentation* the weaker, and to laſt the leſs time.

Or elſe, they put it up in ſuch a *ſeaſon* that the *weather* continued *cold* and *froſty* till the *fermentation* was quite over; and then it having wrought the leſs time, and with the leſs violence, it remained more pleaſant and rich than otherwiſe it would have done.

Now for the *time* of making *Pepin-cider*, I chuſe to do it in the *beginning* of *November*, after the *Apples* had been gathered and laid about three weeks or more in the *loft*, that ſo the *Apples* might have had a little time to *ſweat* in the houſe before the *Cider* was made, but not too much; for if they be not full *ripe* before they be *gathered*, and not ſuffered to lye a while in the *heap*, the *Cider* will not be ſo pleaſant; and if they be *too ripe* when they are *gathered*, or lye too long in the *heap*, it will be very difficult to ſeparate the *Cider* from the *groſs Lee* before the *fermentation* begins: and in that caſe it will work ſo long, that when it *fines* the *Cider* will be *hard*; for when the *Apples* are too *mellow*, they break into ſo ſmall *particles*, that it will be long before the *Lee* ſettles by its *weight* only: and then the *fermentation* may begin before it be *ſeparated*, and ſo deſtroy your intention of taking away the *groſs Lee*. And if the *Apples* be not *mellow* enough, the *Cider* will not be ſo pleaſant as it ought to be.

This being ſaid for the time of making the *Pepin-Cider*, may (*mutatis mutandis*) ſerve for all other ſorts of *Summer-fruit*; as the *Kentiſh-codling*, *Marigolds*, *Gilly-flowers*, *Summer-pearmains*, *Summer-pepins*, *Holland-pepins*, *Golden-pepins*, and even *Winter-pearmains*. For though they muſt not be made at the ſame *time* of the *year*, yet they muſt be made at the *time* when each reſpective

ſpective *fruit* is in the ſame condition that I before directed that the *Winter-pepin* ſhould be. Nay, even in the making of that *Cider*, you are not tied to that time of the *year* to make your *Cider*; but as the condition of that particular *year* hath been, you may make your *Ciden* one, two, three or four weeks later; but it will be very ſeldom that you ſhall need to begin to make *Kentiſh pepin-Cider* before the beginning of *November*, even in the moſt *Southern* parts of *England*.

The next thing I ſhall mention, is, the ordering of your *bottles* after they are *filled*; for in that conſiſts no ſmall part of cauſing your *Cider* to be in a juſt condition to *drink*: For, if it does *ferment* too much in the *bottle*, it will not be ſo convenient to *drink*, neither for the taſte, nor wholſomneſs; and if it *ferment* not at all, it will want that little *fret* which makes it *grateful* to moſt *Palates*. In order to this, you muſt obſerve, firſt, whether the *Cider* were *bottled* too early, or too late, or in the juſt time: If too early, and that it hath too much of the *flying Lee* in it, then you muſt keep it as cool as you can, that it may not work too much, and if ſo little that you doubt it will not work at all, or too little; you muſt by keeping it from the inconvenience of the external *air*, endeavour to haſten and increaſe the *fermentation*. And this I do, by ſetting it in *ſand* to cool, and by covering the *bottles* very well with *ſtraw*, when I would haſten or increaſe the *fermentation*.

And if I find the *Cider* to have been *bottled* in its juſt time, then I uſe *neither*, in ordinary weather; but content my ſelf that it ſtands in a cloſe and cool *Cellar*, either upon the *ground*, or upon *ſhelves*; ſaving in the time that I apprehend *froſt*, I cover it with *ſtraw*, which I take off as ſoon as the *weather* changeth; and conſequently about the time that the cold *Eaſt winds* ceaſe; which uſually with us, is in the beginning of *April*; I ſet my *bottles* into *ſand* up to the necks. And by this means I have kept *Pepin-cider* without change till *September*, and might have kept it longer, if my ſtore had been greater: For by that time the heats were totally over, and conſequently, the *cauſe* of the *turn* of *Cider*.

Having now declared what is (according to my opinion) to be done to preſerve *Cider*, if not in it's original ſweetneſs, yet to let it loſe as little as is poſſible; I ſhall now fall upon my *fifth Aſſertion*, which is, that it is probable that ſomewhat like the former *Method* may in ſome degree mend *Hard-Apple-cider*, *Perry*, or a drink made of the mixtures of *Apples* and *Pears*; and not impoſſible that ſomewhat of the ſame nature may do good to *French wines* alſo.

Firſt, for *French-wines*, I think what I have in the beginning of this *diſcourſe* declared, as the hint which firſt put me upon the conceit, that the over-*fermenting* of *Cider* was the cauſe that it loſt of its original ſweetneſs (*viz.* the making of *three* ſorts of *Wine*, of *one* ſort of *Grapes*) is a teſtimony that the firſt ſort of *Wine* hath but little of the *groſs Lee*, and conſequently, *ferments* but little, nor loſeth but little of the original ſweetneſs; which

makes

makes it evident that the ſame thing will hold in *Wine*, which doth in *Cider*; but the great difficulty is (if I be rightly informed) that they uſe to let the *Wine* begin to *ferment* in the *Vat* before they put it into the *Hogſheads* or other *Veſſels*; and thus they do, that the *Husks* and other *Filth* (which in the way they uſe, muſt neceſſarily be mingled with the *Wine*) may riſe in a *skum* at the top, and ſo be taken off: Now if they pleaſe, as ſoon as it is *preſſed*, to paſs the *Wine* through a *ſtrainer*, without expecting any ſuch *purgation*, and then uſe the ſame *Method* formerly preſcribed for *Cider*, I do not doubt but the groſs part of the *Lee* of *Wines*, being thus taken away, there will yet be enough left to give it a *fermentation* in the *bottles*, or ſecond *veſſel*, where it ſhall be left to ſtand, in caſe you have not *bottles* enough to put up all the *Wine* from which you have thus taken away the *groſs Lee*.

This *Wine* I know not whether it will laſt ſo long as the other uſed in the ordinary way, or not; but this I confidently believe, it will not be ſo harſh as the ſame would have been if it had been uſed in the ordinary way; and the pleaſantneſs of *Taſte*, which is not unwholſome, is the chief thing which I prefer both in *Wine* and *Cider*.

Now for the *Hard-apple-Cider*, that it will receive an improvement by this way of ordering, hath been long my opinion: but this year an accident happened, which made it evident that I was not miſtaken in this conjecture. For there was a *Gentleman* of *Herefordſhire*, this laſt *Autumn*, that by accident had not provided *Caſk* enough for the *Cider* he had made; and having ſix or ſeven *Hogſheads* of *Cider* for which he had no *Caſk*, he ſent to *Worceſter*, *Gloceſter*, and even to *Briſtol*, to buy ſome, but all in vain; and when his *ſervants* returned, the *Cider* that wanted *Caſk* had been ſome five days in the *Vat* uncovered; and the *Gentleman* being then diſpatching a *Barque* for *London* with *Cider*, and having neer hand a conveniency of getting *Glaſs-bottles*, reſolved to put ſome of it into *bottles*; did ſo, and filled ſeven or eight *Hampers* with the cleareſt of this *Cider* in the *Vat*, which had then never wrought, nor been put into any other *Veſſel* but the *Vat*; the *Barque* in which his *Cider* came had a tedious paſſage; that is, it was at leaſt ſeven weeks before it came to *London*, and in that time moſt of his *Cider* in *Caſk* had wrought ſo much that it was much harder than it would have been if it had according to the ordinary way lain ſtill in the *Country*, in the place where it was firſt made and put up, and conſequently, wrought but once.

But the other, which was in *Bottles*, and eſcaped the breaking, that is, by accident, had leſs of the *Lee* in it than other *bottles* had, or was not ſo hard ſtopped, but either before there was force enough from the *fermentation* to break the *bottle*, or that the *Cork* gave way a little, and ſo the *air* got out; or that the *Bottles* were not originally well *corked*, was excellent good, beyond any *Cider* that I had taſted out of *Herefordſhire*; ſo that from this *Experience* I dare confidently ſay, that the uſing *Hard-apple-cider* after the former *Method*, preſcribed for *Pepin-cider*, will make it retain

tain a considerable part of sweetness more than it can do after the *Method* used hitherto in *Herefordshire*. Nor do I doubt but my *Method* will in a degree have the same effect in *Perry*, and the drink (as yet without a name that I do know of) which is made of the *Juice* of *Wardens*, *Pears*, and *Apples*, by several persons, in several proportions; for the *Reason* being the same, I have no cause to doubt, but the *effect* will follow, as well in those *Drinks*, as in *Cider* and *Wines*.

I am now come to my last *Assertion*; that *Cider* thus used cannot be *unwholesom*, but may be done to what degree any mans *Palate* desires.

First, It cannot be *unwholesome*, upon the same measure that *stummed Wine* is so; for that unwholesomness is by leaving the cause of *fermentation* in the *Wine*, and not suffering it to produce its *effect* before the *Wine* be drank, and it *ferments* in mans body: and not only so, but sets other *humours* in the body into *fermentation*; and this prejudiceth their *health* that drink such *Wines*.

Now though *Cider* used in my *method* should not *ferment* at all, till it come into the *bottle*, and then but a little; yet the cause of *fermentation* being in a great degree taken away, the rest can do no considerable harm to those which drink it, being in it self but little, and having wrought in the *bottle* before men drink it; nor indeed do I think, nor ever find, that it did any inconvenience to my self, or any person that drank it when it was thus used.

Secondly, because the difference of mens *palates* and *constitutions* is very great; and that accordingly men like or dislike drink that hath more or less of the *fret* in it; and that the consequences in point of health are very different, in the *method* by me formerly prescribed: it is in your *power* to give the *Cider* just as much *fret* as you please, and no more; and that by several ways: for either you may *bottle* it sooner or later, as you please: or you may *bottle* it from two *Taps* in your *Vessel*, and that from the *higher* Tap will have less *fret*, and the *lower* more: or you may *bottle* your *Cider* all from one *Tap*, and open some of the *bottles* about a week after for a few *minutes*, and then stop them up again; and that which was thus stop'd will have the less *fret*: or, if your *Cider* be *bottled* all from one *Tap*, if you will (even without opening the *bottles*) you may make some difference, though not so considerable as either of the former ways, by keeping part of the *bottles* warmer, for the first two *Months*, than the rest; for that which is kept warmest will have the most *fret*.

Sir *PAUL NEILE'S* second Paper.

My Lord,

THE Paper which by the Command of the *Royal Society* I delivered in the last year, concerning the ordering of *Cider*, I have by this years experience found defective in one particular; of which I think fit by this to give you notice, which is thus: Whereas in the former *Paper* I mention, that after the *Pepin-Cider* hath stood 24 hours in the *Vat*, it might be drawn off into Pails, and so put into the Vessel; and that having stood a second 24 hours in that Vessel, it might be drawn into another Vessel, in which it might stand till it were fit to *Bottle*; for the particulars of all which proceeding I refer to the former Paper; and shall now only mention, That this last year we were fain to draw it off into several Vessels, not only as is there directed, *twice*, but most of our *Cider* five, and some *six* times; and not only so, but we were after all this fain to *precipitate* the *Lee* by some of those ways mention'd by Dr. *Willis* in the 7th *Chap.* of his Treatise *De fermentatione*. Now though this be more of trouble than the Method by me formerly mention'd; yet it doth not in the least destroy that *Hypothesis* which in the former Discourse I laid down, (*viz.*) That it was the leaving too much of the *Lee* with the *Cider*, which upon the change of air, set it into a new *fermentation*, and consequently made it lose the sweetness; for this change by the indisposition of the *Lee* to settle this year more than others, hath not hindred the goodness of the *Cider*; but that when it was at last mastered, and the *Cider* bottled in a fit temper, it was never more pleasant and quick than this year: but I find that this year our *Cider* of Summer-Apples is already turned sowre, although it be now but the first of *January*; and the last year it kept very well till the beginning of *March*; which makes me fear that our *Pepin-Cider* will not keep till this time twelvemoneth, as our *Pepin-Cider* of the last year doth till this day, and still retains its original pleasantness without the least turn towards sowreness.

And I am very confident, the difference of time and trouble, which this year we found in getting the *Cider* to *fine* and be in a condition to Bottle, was only the effect of a very bad and wet Summer, which made the Fruit not ripen kindly; and to make it yet worse, we had just at the time when we made our *Cider*, this year, extream wet and windy weather, which (added to the unkindliness of the Fruit) was the whole cause of this alteration: And however my *Hypothesis* as yet remains firm, for if by taking any part of the *Lee* from the *Cider* you can preserve it in its original sweetness, it is not at all material whether it be always to be done by twice drawing off from the *Lee*, or that it must sometimes

times be done with more trouble, and by oftner repeating the ſame Work, ſo that finally it be done, and by the ſame means, that is, by taking away part of the *Lee*, which otherwiſe would have cauſed too much *fermentation*; and conſequently have made the *Cider* loſe part of its original ſweetneſs.

My Lord, I ſhould not have preſumed to have given you and the *Society* the trouble of peruſing this Paper, but that, if poſſible, I would have you ſee, that what I think an errour in any opinion that I have held, I am willing to own; and yet I deſire not that you ſhould think my miſtake greater than in Reality it is.

OBSERVATIONS
Concerning the
Making, and Preſerving
OF
CIDER:
BY
JOHN NEWBURGH Eſq;

1.

IF the *Apples* are made up immediately from the *Tree*, they are obſerv'd to yield *more*, but not ſo *good* Cider, as when *hoarded* the ſpace of a Moneth or ſix weeks; and if they contract any unpleaſing taſte (as ſometimes 'tis confeſs'd they do) it may be imputed to the Room they lie in, which if it hath any thing in it, of either too ſweet or unſavoury ſmell, the *Apples* (as things moſt ſuſceptible of impreſſion) will be eaſily tainted thereby.

One of my acquaintance, when a child, hoarding *Apples* in a Box where *Roſe-Cakes* and other ſweets were their companions, found them of ſo unſavoury taſte, and of ſo rank a reliſh deriv'd from the too near neighbour-hood of the Perfumes, that even a childiſh palate (which ſeldom miſlikes any thing that looks like an *Apple*) could not diſpenſe with it.

2.

It is therefore obſerv'd by prudent *Fruiterers*, to lay their *Apples* upon clean new made *Reed*, till they grind them for *Cider*, or otherwiſe make uſe of them. And if, notwithſtanding this caution, they contract any rottenneſs before they come to the *Cider-preſs*, the damage will not be great, if care be had before the *Apples* be ground, to pick out the finnewed and the black-rotten; the reſt, though ſomewhat of putrefaction hath paſs'd upon them, will not render the *Cider* ill condition'd, either in reſpect of taſte, or duration.

A Friend of mine having made proviſion of *Apples* for *Cider*, whereof ſo great a part were found rotten when the time of grinding them came, that they did, as 'twere waſh the Room with their Juice, through which they were carried to the *Wring*, had *Cider* from them not only paſſable, but exceeding good; though not without previous uſe of the pre-mention'd Caution. I am alſo aſſured by a Neighbour of mine, That a Brother of his who is a great *Cider-Merchant* in *Devonſhire*, is by frequent experience ſo well ſatisfied of the harmleſneſs of *Rotten-Apples*, that he makes no ſcruple of exchanging with any one that comes to his *Cider-preſs*, a Buſhel of *ſound-Apples* for the ſame meaſure of the other. Herein, I ſuppoſe, (if in other reſpects they be not prejudicial) he may be a gainer by the near compreſſion of the tainted Fruit, which, as we ſpeak in our Country Phraſe, will go nearer together than the other. His advantage may be the greater, if the conceit which goes current with them be not a bottomleſs fancy, That a convenient quantity of *rotten-Apples* mixt with the ſound, is greatly aſſiſtant to the work of *fermentation*, and notably helps to clarifie the *Cider*.

3.

It matters not much whether the *Cider* be forc'd to purge it ſelf by working downwards in the Barrel, or upwards at the uſual Vent, ſo there be matter ſufficient left on the top for a thick skin or film, which will ſometimes be drawn over it when it works, after the uſual manner, as when 'tis preſently ſtopt up with ſpace left for *fermentation*, to be perform'd altogether within the Veſſel.

The thick skin, or *Leathern-coat*, the *Cider* oftentimes contracts, as well after it hath purged it ſelf after the uſual manner, as otherwiſe, is held the ſureſt preſervation of its *ſpirits*, and the beſt ſecurity againſt other inconveniences incident to *this*, and other like *vinous* Liquors, of which the *Devonſhire Cider-Merchants* are ſo ſenſible, that, beſide the particular care they take, that matter be not wanting for the Contexture of this upper garment by ſtopping up the Veſſel as ſoon as they have fill'd it; (with the allowance of a Gallon or two upon the ſcore of *Fermentation*) they caſt in Wheaten Bran, or Duſt, to thicken the Coat, and render it more certainly Air-proof. And I think you will believe their care in this kind not impertinent, if you can believe a ſtory which I have to tell of its marvellous efficacy: A near neighbour of mine aſſures me, that his Wife having this year filled a Barrel with *Mead*, being ſtrong, it wrought ſo boiſtrouſly in the Veſſel, that the good Woman caſting her eye that way, accidentally, found it leaking at every chink, which aſcribing to the ſtrength of the Liquor, ſhe thought immediately by giving it vent, to ſave both the Liquor and the Veſſel, but in vain; both the Stopples being pulled out, the leakage ſtill continued, and the Veſſel not at all reliev'd; till caſually at length putting

putting in her finger at the top, she brake the premention'd film; which done, a good part of the *Mead* immediately flying out, left the residue in peace, and the leakage ceased. It may seem incredible that so thin a skin should be more coercive to a mutinous Liquor, than a Barrel with Oaken-Ribs, and stubborn Hoops: But I am so well assur'd of the veritableness of my Neighbours Relation, that I dare not question it: The reason of it let wiser men determine.

4.

If the *Apples* be abortive, having been (as it usually happens) shaken down before the time by a violent Wind, it is observ'd to be so indispensably necessary that they lie together in hoard, at least till the usual time of their maturity, that the *Cider* otherwise is seldom, or never found worth the drinking.

A Neighbour told me, That making a quantity of *Cider* with *Wind-falls* which he let ripen in the Hoard, near a month interceding between the time of their decussion, and that which Nature intended for their maturity; his *Cider* prov'd very good, when all his Neighbours who made up their untimely fruit assoon as it fell, had a crude, austere, indigested Liquor, not worth the name of *Cider*.

5.

No Liquor is observ'd to be more easily affected with the savour of the *Vessel* it is put into, than *Cider*; therefore singular care is taken by discreet *Cider-Masters*, That the *Vessel* be not only *tasteless*, but also well prepar'd for the *Liquor* they intend to fill it with. If it be a new *Cask*, they prepare it by scalding it with Water, wherein a good quantity of *Apple-pomice* hath been boil'd: if a tainted *Cask*, they have divers ways of cleansing it. Some boil an *Ounce* of *Pepper* in so much Water as will fill an *Hogshead*, which they let stand in a Vessel of that capacity two or three days, and then wash it with a convenient quantity of fresh Water scalding hot, which they say is an undoubted cure for the most dangerously infected *Vessel*. A Friend and Neighbour of mine herewith cured a Vessel of so extream ill savour, as it was thought it would little less than poyson any Liquor that was put into it. Others have a more easie, and perhaps no less effectual Remedy. They take two or three stones of quick-Lime, which in six or seven Gallons of Water they set on work in the *Hogshead* being close stopt, and tumbling it up and down till the commotion cease, it doth the feat. Of Vessels that have been formerly used, next to that which hath been already acquainted with *Cider*, a *White-Wine*, or *Vinegar Cask* is esteem'd the best; *Claret* or *Sack* not so good. A Barrel newly tenanted by small *Beer* suits better with *Cider* than a strong-*Beer* Vessel.

6. Half

6.

Half a peck of unground Wheat put to *Cider* that is harſh and eager, will renew its *fermentation*, and render it more mild and gentle. Sometimes it happens without the uſe of any ſuch means to change with the ſeaſon, and becomes of *ſharp* and *ſour* unexpectedly *benigne* and *pleaſant*. Two or three *Eggs* whole put into an *Hogshead* of *Cider* that is become ſharp and near of kin to *Vinegar*, ſometimes rarely lenifies and gentilizes it. One pound of *broad-figs* ſlit, is ſaid to dulcifie an *Hogshead* of ſuch *Cider*.

A Neighbour *Divine*, of my acquaintance, aſſured me, That coming into a *Parſonage-houſe* in *Devonſhire*, where he found eleven *Hogsheads* of *Cider*; being unwilling to ſell what he never bought, he was three years in ſpending that ſtore which the former *Incumbent* had left him; and it greatly amus'd him (as well it might, if he remember'd the old *Proverb*, *He mends as ſour Ale in Summer*) to find the ſame *Cider*, which in *Winter* was almoſt as ſharp as *Vinegar*, in the *Summer* become a potable and good-natur'd Liquor.

7.

A little quantity of *Muſtard* will clear an *Hogshead* of muddy *Cider*. The ſame Virtue is aſcribed to two or three *rotten Apples* put into it. *Muſtard* made with *Sack* preſerves boild *Cider*, and ſpirits it egregiouſly.

8.

Cider is found to *ferment* much better in mild and moiſt, than in cold and dry weather. Every ones Experience hath taught him ſo much in the late froſty ſeaſon. If it had not wrought before, it was in vain to expect its working or clearing then, unleſs by ſome of the artificial means premention'd, which alſo could not be made uſe of in a more inconvenient time.

9.

The latter running of the *Cider* bottled immediately from the *Wring*, is by ſome eſteem'd a pure, clear, ſmall, well reliſht Liquor; but ſo much undervalued by them who deſire ſtrong drinks more than *wholeſome*, that they will not ſuffer it to incorporate with the firſt running.

In *Devonſhire* where their *Wrings* are ſo hugely great, that an *Hogshead* or two runs out commonly before the *Apples* ſuffer any conſiderable preſſure, they value this before the other, much after

after the rate which we ſet upon *life-honey* (that which in like ſort drops freely out of the *Combs*) above that which renders not it ſelf without *compreſſion*. In *Jerſey* they value it a *Crown* upon an *Hogshead* dearer than the other: (This I take from the Relation of one of my Neighbours, who ſometimes lived in that *Iſland*, which for *Apples* and *Cider* is one of the moſt famous of all belonging to his *Majeſties* Dominions) Yet even upon *this*, and their choiceſt *Ciders*, they commonly beſtow a *pail* of *water* to every *Hogshead*, being ſo far (it ſeems) of *Pindar*'s mind, that they fear not any prejudice to their moſt excellent *Liquors* by a daſh of that moſt excellent *Element*: Inſomuch that it goes for a common ſaying amongſt them, That if any *Cider* can be found in their *Iſland*, which can be prov'd to have no mixture of *Water*, 'tis clearly forfeited. It ſeems they are ſtrongly conceited, that this addition of the moſt uſeful *Element*, doth greatly meliorate their *Cider*, both in reſpect of *Colour*, *Taſte*, and *Clarity*.

10.

The beſt *Cider-fruit* with us in this part of *Dorſetſhire* (lying near *Bred-port*) next to *Pepin* and *Pearmain*, is a *Bitter-ſweet*, or (as we vulgarly call them) *Bitter-ſcale*, of which for the firſt, the *Cider* unboil'd keeps well for one year; boiling it you may keep it two years or longer.

About ſeven years ſince I gave my ſelf the Experience of *Bitter-ſcale Cider* both crude and boil'd. I call'd them both to account at twelve Months end. I then found the *crude Cider* ſeemingly as good, if not better, than the *boiled*. But, having ſtopt up the *boil'd*, I took it to task again about ten Months after. At which time, I found it ſo exceſſively ſtrong, that five perſons would hardly venture upon an ordinary Glaſs full of it. My friends would hardly believe but I had heightned it with ſome of my *Chymical Spirits*. The truth is, I do not remember that I ever drunk any Liquor, on this ſide *Spirits*, ſo highly ſtrong, and *ſpirituous*; but wanting pleaſantneſs anſwerable to its ſtrength, I was not very fond of my *Experiment*. In which I boil'd away, as I remember, more than half.

11.

A Neighbour having a good Provent of *pure-Lings* (an *Apple* of choice account with us) making up a good part of them to *Cider*, expected rare Liquor, but it prov'd very mean and pitiful *Cider*, as generally we find that to be, which is made without mixture. We have few *Apples* with us, beſide the *Bitter-ſcale*, which yield good *Cider* alone; next to it

is

is a *Deans-Apple*, and the *Peleasantine* I think may be mention'd in the third place; neither of which need the Addition of other *Apples* to set off the Relish, as do the rest of our choicest Fruits. *Pepins*, *Pearmains*, and *Gilliflours* commixt, are said to make the best *Cider* in the world. In *Jersey* 'tis a general observation, as I hear, That the more of red any *Apple* hath in its rind, the more proper it is for this use. *Paleface't-Apples* they exclude as much as may be from their *Cider-Vat*. 'Tis with us an observation, That no *sweet-Apple* that hath a tough rind, is bad for *Cider*.

12.

If you *boil* your *Cider*, special care is to be had, That you put it into the *furnace* immediately from the *Wring*; otherwise, if it be let stand in *Vats* or *Vessels* two or three days after the pressure, the best, and most *spirituous* part will ascend, and vapour away when the fire is put under it; and the longer the *boiling* continues, the less of goodness, or virtue will be left remaining in the *Cider*.

My *Distillations* sufficiently instruct me, That the same *Liquor* which (after *fermentation* hath pass'd upon it) yields a plentiful quantity of *spirit*, drawn off unfermented, yields nothing at all of *spirit*. And upon the same account it is undoubtedly certain, That *Cider* boil'd immediately from the *Wring*, hath its *spirits* compress't, and drawn into a narrower compass, which are for the most part wash'd and evaporated by late unseasonable boiling.

CONCERNING CIDER,

By Doctor *SMITH.*

THE beſt time to *grind* the *Apples* is immediately from the *Tree*, ſo ſoon as they are throughly ripe: for, ſo they will yield the greater quantity of *Liquor*, the *Cider* will drink the better, and laſt longer than if the *Apples* were hoarded: For *Cider* made of hoarded *Apples* will always retain an unpleaſing taſte of the *Apples*, eſpecially if they contract any rottenneſs.

The *Cider* that is ground in a *Stone-caſe* is generally accuſed to taſte unpleaſantly of the *Rinds*, *Stems*, and *Kernels* of the *Apples*; which it will not if ground in a *Caſe* of *Wood*, which doth not bruiſe them ſo much.

So ſoon as the *Cider* is made, put it into the *Veſſel* (leaving it about the ſpace of one *Gallon* empty) and preſently ſtop it up very cloſe: This way is obſerved to keep it longer, and to preſerve its *ſpirits* better than the uſual way of filling the *Veſſel* quite full, and keeping it open till it hath done *fermenting*.

Cider put into a new Veſſel will often taſte of the *Wood*, if it be pierced early; but the ſame ſtopped up again, and reſerved till the latter end of the year, will free it ſelf of that taſte.

If the *Cider* be ſharp and thick it will recover it ſelf again: But if ſharp and clear, it will not.

About *March* (or when the Cider begins to ſparkle in the glaſs) before it be too fine, is the beſt time to bottle it.

Cider will be much longer in clearing in a mild and moiſt, then in a cold and dry *Winter*.

To every *Hogſhead* of *Cider*, deſigned for two years keeping, it is requiſite to add (about *March*, the firſt year) a quart of *Wheat* unground.

The beſt *Fruit* (with us in *Gloceſter-ſhire*) for the firſt years *Cider*, are the *Red-ſtrake*; the White and Red *Muſt-apple*, the ſweet and ſour *Pepin*, and the *Harvey-apple*.

Pearmains alone make but a ſmall liquor, and hardly clearing of it ſelf; but, mixed either with ſweet or ſour *Pepins*, it becomes very brisk and clear.

Muſt-apple-cider (though the firſt made) is always the laſt ripe; by reaſon that moſt of the *pulp* of the *Apple* paſſeth the *ſtrainer* in preſſing, and makes it exceeding thick.

The *Cider* of the *Bromsbury-Crab*, and *Fox-whelp*, is not fit for drinking, till the *ſecond year*, but then very good.

The *Cider* of the *Bromsbury-Crab* yields a far greater proportion of *ſpirits*, in the diſtillation, than any of the others.

Crabs and *Pears* mixed make a very pleaſing Liquor, and much ſooner ripe than *Pears* alone.

OF

OF
CIDER.

By Capt. *SYLAS TAYLOR*.

Herefordſhire affords ſeveral ſorts of *Cider-apples*, as the two ſorts of *Red ſtrakes*, the *Gennet-moyle*, the *Summer-violet*, or *Fillet*, and the *Winter-fillet*; with many other ſorts which are uſed only to make *Cider*. Of which ſome uſe each ſort *ſimply*; and others *mix* many ſorts together. This *County* is very well ſtored with other ſorts of *Apples*; as *Pepins*, *Pearmains*, *&c.* of which there is much *Cider* made, but not to be compared to the *Cider* drawn from the *Cider-apples*; among which the *Red-ſtrakes* bear the Bell; a *Fruit* in it ſelf ſcarce *edible*; yet the *juice* being preſſed out is immediately pleaſant in taſte, without any thing of that *reſtringency* which it had when incorporated with the *meat*, or *fleſh* of the *Apple*. It is many times *three Months* before it comes to its *clearneſs*, and *ſix Months* before it comes to a ripeneſs fit for *drinking*; yet I have taſted of it *three years old*, very pleaſant, though dangerouſly ſtrong. The *colour* of it, when *fine*, is of a ſparkling *yellow*, like *Canary*, of a good full body, and *oyly*: The *taſte*, like the *Flavour* or *perfume* of excellent *Peaches*, very grateful to the *Palate* and *Stomach*.

Gennet-moyles make a *Cider* of a ſmaller body than the former, yet very pleaſant, and will laſt a *year*. It is a good eating pleaſant ſharp fruit, when ripe, and the beſt *Tart-apple* (as the *Red-ſtrake* alſo) before its ripeneſs. The *Tree* grows with certain knotty *extuberancies* upon the *branches* and *boughs*; below which *knot* we cut off boughs the thickneſs of a mans *wriſt*, and place the knot in the ground, which makes the *root*; and this is done to raiſe this *fruit*; but very rarely by *graffing*.

Of *Fillets* of both ſorts (*viz.* Summer and Winter) I have made *Cider* of that proportionate taſte and ſtrength, that I have deceived ſeveral experienced *Palates*, with whom (ſimply) it hath paſſed for *White-Wine*; and *daſhing* it with *Red-Wine*, it hath paſſed for *Claret*; and mingled with the *Syrupe* of *Raſp'yes* it makes an excellent *womans wine*: The fruit is not ſo good as the *Gennet-moyle* to eat: The *Winter-fillet* makes a *laſting Cider*, and the

Summer-fillet an *early Cider*, but both very ſtrong; and the *Apples* mixt together make a good *Cider*.

Theſe *Apples* yield a *liquor* more grateful to my *Palate* (and ſo eſteem'd of in *Herefordſhire* by the greater *Ciderists*) than any made of *Pepins* and *Pearmains*, of which ſorts we have very good in that *Country*; and thoſe alſo both *Summer* and *Winter* of both ſorts, and of which I have drank the *Cider*; but prefer the other.

Grounds ſeparated only with a *Hedge* and *Ditch*, by reaſon of the difference of *Soils* have given a great alteration to the *Cider*, notwithſtanding the Trees have been graffed with equal care, the ſame *Graffs*, and laſtly, the ſame care taken in the making of the *Cider*. This as to the *Red-ſtrake*; I have not obſerv'd the ſame *niceneſs* in any other *fruit*; for *Gennet-moyles*, and *Fillets* thrive very well over all *Herefordſhire*. The *Red-ſtrake* delights moſt in a fat ſoil: *Hamlacy* is a rich intermixt ſoil of *Red-fat-clay* and *Sand*; and *Kings-capel* a low hot ſandy ground, both well defended from noxious *Winds*, and both very famous for the *Red-ſtrake-cider*.

There is a *Pear* in *Hereford* and *Worceſter-ſhires*, which is called *Bareland-pear*, which makes a very good *Cider*. I call it *Cider* (and not *Perry*) becauſe it hath all the *properties* of *Cider*. I have drank of it from half a year old to two years old. It keeps it ſelf without *Roping* (to which *Perry* is generally inclined) and from its taſte: Dr. *Beal*, in his little *Treatiſe* called the *Herefordſhire-Orchard*, calls it deſervingly a *Maſculine Drink*; becauſe in taſte not like the ſweet *luſcious feminine* juice of *Pears*. This *Tree* thrives very well in barren ground, and is a fruit (with the *Red-ſtrake*) of which *Swine* will not eat; therefore fitteſt to be planted in Hedge-rows.

Red ſtrakes and other *Cider-apples* when *ripe* (which you may know partly by the blackneſs of the *Kernels*, and partly by the *colour* and *ſmell* of the fruit) ought to be gathered in *Baskets* or *Bags*, preſerved from bruiſing, and laid up in heaps in the *Orchard* to *ſweat*; covered every night from the *dew*: Or elſe, in a *Barn-floor* (or the like) with ſome *Wheat* or *Rye-ſtraw* under them, being kept ſo long till you find, by their *mellowing*, they are fit for the *Mill*.

They that grind, or bruiſe their *Apples* preſently upon their *gathering*, receive ſo much *liquor* from them, that between *twenty* or *twenty two Buſhels* will make a *Hogshead* of *Cider*: but this *Cider* will neither *keep* ſo well, nor *drink* with ſuch a *fragrancy* as is deſired and endeavoured.

They that keep them a *month* or *ſix weeks* hoarded, allow about *thirty buſhels* to the making of a *Hogshead*; but this hath alſo an inconvenience; in that the *Cider* becomes not *fine*, or fit for drinking, ſo conveniently as a *mean* betwixt theſe two will afford.

Keep them then about a *fort-night* in a *hoard*, and order them to be of ſuch a *caſt* by the *Mellowing*, that about *twenty*

ty five Bushels may make a *Hogshead*, after which mellowing proceed thus.

1. *Pick* and *clear* your *Apples* from their *stalks*, *leaves*, *moaziness*, or any thing that tends toward *rottenness* or decay.

2. Lay them before the *stone* in the *Cider-Mill*, or else beat them small with *Beaters* (such as *Paviers* use to fix their pitching) in deep *troughs* of *Wood* or *Stone*, till they are fit for the *Press*.

3. Having laid clean *wheat straw* in the bottom of your *Press*, lay a heap of bruised *Apples* upon it, and so with small handfuls or *wisps* of *straw*, which by twisting takes along with it the ends of the *straw* laid first in the bottom, proceed with the bruised *Apples*, and follow the heaps with your twisted *straw*, till it comes to the height of two foot, or two foot and a half; and so with some *straw* drawn in by *twisting*, and turned over the top of it (so that the bruised *Apples* are set as it were into a deep *Cheese-vat* of *straw*, from which the Country people call it their *Cider-Cheese*) let the *board* fall upon it *even* and *flat*, and so engage the force of your *skrew* or *Press* so long as any *Liquor* will run from it. Instead of this *Cheese* others use *baggs* of *Hair-cloth*.

4. Take this *Liquor* thus forced by the *Press*, and *strain* it thorow a *strainer* of *hair* into a *Vat*, from whence straight (or that day) in *pails* carry it to the *Cellar*, tunning it up presently in such *Vessels* as you intend to preserve it in; for I cannot approve of a long *evaporation* of *spirits*, and then a disturbance after it settles.

5. Let your *Vessels* be very tight and clean wherein you put your *Cider* to settle: The best form is the *Stund* or *Stand*, which is set upon the lesser end, from the top *tapering* downwards; as suppose the *head* to be *thirty* inches *diametre*, let then the *bottom* be but *eighteen* or *twenty* inches in *diametre*; let the *Tun-hole* or *Bung-hole* be on the one side *outwards*, towards the *top*. The reason of the goodness of this *form* of *Vessel* is, because *Cider* (as all strong Liquors) after *fermentation* and working, contracts a *cream* or *skin* on the *top* of them, which in this form of *Vessel* is as it sinks *contracted*, and fortified by that contraction, and will draw fresh to the last drop; whereas in our ordinary *Vessels*, when drawn out about the half or middle, this skin *dilates* and *breaks*, and without a quick draught decays and dies.

6. Reserve a *Pottle* or *Gallon* of the *Liquor* to fill up the *Vessel* to the brim of the *Bung-hole*, as oft as the *fermentation* and working lessens the *Liquor*, till it hath done its work.

7. When it hath compleated its work, and that the *Vessel* is filled up to the *bung-hole*, stop it up close with well mix'd *clay*, and well tempered, with a handful of *Bay-salt* laid upon the top of the *clay*, to keep it moist, and renewed as oft as need shall require; for if the *clay* grows dry it gives *vent* to the *spirits* of the *Liquor*, by which it suffers decay.

I am

I am against either the *boyling* of *Cider*, or the hanging of a bag of *Spices* in it, or the use of *Ginger* in drinking it; by which things people labour to correct that *windiness* which they fancy to be in it: I think *Cider* not *windy*; those that use to drink it are most free from *windiness*; perhaps the *virtue of* it is such, as that once ripened and mellowed, the drinking of it in such strength combates with that *wind* which lies insensibly latent in the body. The *Cider* made and sold here in *London* in *Bottles* may have that *windiness* with it as *Bottle-beer* hath, because they were never suffered to *ferment*: But those that have remarked the strength and vigour of its *fermentation*, what weighty things it will cast up from the bottom to the top, and with how many bubbles and bladders of *wind* it doth *work*, will believe that it clears it self by that operation of all such injurious *qualities*.

To preserve *Cider* in *Bottles* I recommend unto you my own *Experience*, which is, Not to *bottle* it up before *fermentation*; for that incorporates the *windy quality*, which otherwise would be ejected by that operation: This violent suppression of fermentation makes it *windy* in drinking, (though I confess *brisk* to the *taste*, and *sprightly* cutting to the *Palate*:) But after *fermentation*, the *Cider* resting two, three, or four Months, draw it, and *bottle* it up, and so lay it in a *Repository* of cool *springing water*, two or three foot, or more, deep; this keeps the *spirits*, and the best of the *spirits* of it together: This makes it drink quick and lively; it comes into the *glass* not *pale* or troubled, but bright *yellow*, with a speedy vanishing *nittiness*, (as the *Vintners* call it) which *evaporates* with a *sparkling* and *whizzing* noise; And than this I never tasted either *Wine* or *Cider* that pleased better: Insomuch that a *Noble man* tasting of a *Bottle* out of the *water* (himself a great *Ciderist*) protested the excellency of it, and made with much greater charges, at his own dwelling, a *water Repository* for his *Cider*, with good success.

An

An ACCOUNT of

Perry and Cider

Out of *GLOCESTER-SHIRE*,

Imparted by

DANIEL COLLWALL Esq;

ABout *Taynton*, Five Miles beyond *Glocester*, is a mixt sort of *land*, partly *Clay*, a *Marle*, and *Crash*, as they call it there, on all which sorts of *land*, there is much *Fruit* growing, both for the *Table* and for *Cider*: But it is *Pears* it most abounds in, of which the *best* sort, is that they name the *Squash-Pear*, which makes the best *Perry* in those Parts. These *Trees* grow to be very large, and exceeding fruitful, bearing a fair round *Pear*, red on the one side, and yellow on the other, when fully ripe: It oftentimes falls from the *Tree*, which commonly breaks it; but it is of a nature so *harsh*, that the *Hogs* will hardly *eat them*.

They usually plant the *stocks* first, and when of competent bigness (and tall enough to prevent *Cattel*) *graff* upon them: 'Tis observed, that where *land* is *Plow'd* and dress'd for *Corn*, the *Trees* thrive much better than in the *Pasture-grounds*, so as divers *Orchards* are yearly plow'd and sown with Corn, which for the most part, they suffer their *Swine* to eat upon the ground, without cutting; and such *Plantations* seldom or never fail of plentiful *Crops*, especially in the *Rye-land*, or light Grounds.

About *Michaelmas* is made the best *Cider*, and that of such *Fruit* as drops from the *Trees*, being perfectly mature; and if any are gathered sooner, they let them lye in the *house* 8 or 9 days for the better mellowing.

The best *Mills* to grind in, are those of *Stone*, which resembles a *Mill stone* set *edge*-ways, moved round the *Trough* by an *Horse* till the *Fruit* be bruised small enough for the *Press*: This done, then put it up into a *Crib* made with strong studds, and *Oken* or *Haisel* twigs about 3 *foot* high, and 2 ½ wide, which is placed on a *Stone* or Wooden *Cheese-fat*, a *foot* broader than the *Crib*, fitted to a round *Trough* for the *Liquor* to pass into the *Cistern* which is a large Vessel: When the *Crib* is filled with the foresaid ground *Fruit*, they put a *Stone* upon it, but first they fit a *Circle* of fresh *straw* about the *Crib*, to preserve the *Must* (which is the bruised *Fruit*) from straining through the *Crib* when they apply the *Skrews*, which being *two* in number, and of a good size, turn in a great *beam*, and so are wrung down upon the

the *Crib*, within which they place two wide and thick *Cheese-fats*, and ſeveral *blocks* upon the *Fruit*, to cruſh it down with the more force, by which means it is wrung ſo *dry*, as nothing can be had more out of it. A *Crib* will contain at *once*, as much ground *Fruit*, as will make above an *Hogs-head* of *Cider*, and there may be diſpatched *ſix* or *ſeven* ſuch *Veſſels* in one day.

When the *Preſſing* is finiſhed, they take out the *Fruit*, and put it into a great *Fat*, pouring ſeveral *Payls* of *Water* to it, which being well *impregn'd*, is ground again ſleightly in the *Mill*, to make an ordinary *Cider* for the *ſervants*; this they uſually drink all the *Tear* about.

When the beſt *Liquor* is tun'd up, they commonly leave the *Bung-hole* open, for *nine* or *ten* days, to *ferment* and *purifie*; for though in moſt places they adde *ſtraining* to all this, yet ſome of the *Husks* and *Ordure* will remain in it. The *Veſſel* after a day or two ſtanding, is fill'd up, and ſtill as the *Cider* waſtes in working, they ſupplie it again, till no more *filth* riſes; and then *ſtop* it up very accurately cloſe, leaving only a ſmall *breathing* hole to give it air for a *Moneth* after, and to prevent the *burſting* of the *Veſſel*.

Note, That they ſometimes put ⅓ *Pears*, and ⅓ of *Apples*.

The uſual Names *of* Gloceſter-ſhire Cider-Fruit.

Red-ſtreaks, growing chiefly in the *Rye-Lands*, ſweet *White-Muſts*, *Red-Muſt*, the *Winter-Muſt*, the *Streak-Muſt*, the *Gennet-Moyl*, the *Woodcock-Apple*, the *Bromſgrove-Crab*, the *Great-white-Crab*, the *Heming*, and divers other ſorts, but theſe are the principal.

The *Pears* for *Perry* are,

The *Red Squaſh-pear* eſteem'd the beſt, the *John-pear*, the *Harpary Green-pear*, the *Drake-pear*, the *Green Squaſh-pear*, the *Mary-pear*, the *Lullam-pear*: theſe are the chief.

Another

Another Account of CIDER *from a* Perſon *of great* Experience.

Cider-Apples for ſtrength, and a long laſting *Drink*, is beſt made of the *Fox-Whelp* of the *Foreſt* of *Deane*, but which comes not to be drunk till *two* or *three years* old.

2. *Bromsborrow-Crab* the ſecond year; In the Coaſt and Tract 'twixt *Hereford* and *Ledbury*.

3. *Under-leaf*, beſt at *two* years, a very plentiful bearer hath a *Rheniſh-wine* flavour; the very *beſt* of all *Ciders* of this kind, *hoarded* a little within doors. The *longer* you would *keep*, the *longer* you muſt *hoard* your *Fruit*.

4. The *Red-ſtrake* of *Kings-Capel*, and thoſe parts, is in great variety: Some make *Cider* that is not of continuance, yet pleaſant and good; others, that laſts long, inclining towards the *Bromsborrow-Crab* rather than a *Red-ſtrake*.

5. A long pale *Apple*, called the *Coleing*, about *Ludlow*, an extraordinary bearer.

6. The *Arier-Apple*, a conſtant *bearer*, making a ſtrong and laſting *Cider*; ſome call them *Richards*, ſome *Grang-apples*; and indeed they make ſo excellent a *Drink*, that they are worthy to be recover'd into uſe.

7. The *Olive*, well known about *Ludlow*, may, I conceive be accounted of the *Winter-Cider Apples*, of which 'tis the conſtant report, that an *Hogs-head* of the *Fruit* will yield an *Hogs-head* of *Cider*. The *Summer-Ciders* are,

1. The *Gennet-Moyl* of one year: The beſt *Baking-Apple* that grows, and keeps long *baked*; but not ſo *unbaked* without growing *mealy*: it *drys* well in the *Oven*, and with little trouble. The *Gennet-Moyl Cider*, when the *Fruit* is well *hoarded* and mellow, will body, and keep better.

2. The Summer *Red-ſtrake*, of a wonderful *fragrant* and *Aromatique* quality.

3. Sir *Ed. Harley's little Apple*, eſteemed to make one of the richeſt *Ciders* in the World. Alſo, his,

4. *Great Summer-Apple*, reſembling the *Red-ſtrake*, juicy and *Aromatique*.

5. The *White-Muſt*, *ſtreaked Muſt*, &c. great bearers, and their *Cider* early ripe.

6. *Pearmains*, have made excellent *Cider*, as good, if not ſuperior to any other in ſome years; and though it be true, that every ſort of *Fruit* makes better *Drink* ſome years than others; yet, for the moſt part, the goodneſs and perfection of *Cider* reſults from the lucky, or intelligent *Gathering*, or *Hoarding* of the *Fruit*, or from both; and this *knowledge* muſt be from *Experience*.

7. Generally, the *Cider* longeſt in *fining*, is ſtrongeſt and beſt laſting, eſpecially if the *fruit* have been well *hoarded* for ſome time.

8. *Cider* made of *Green*, and immature *Fruit*, will not *fine* kindly, and when it does, it abides not long good, but ſuddenly becomes *eagre*.

9. *Cider* kept in very cool *Cellars*, if made of ripe *Fruit*, renders it long in *fining*, and ſometimes *Cider* by expoſing abroad in the *Sun*, and kept *Warm*, hath ſooner *matur'd*, and continu'd long good : But the beſt *Drink* is that which *fines* of it ſelf, preſerved in an indifferent temper.

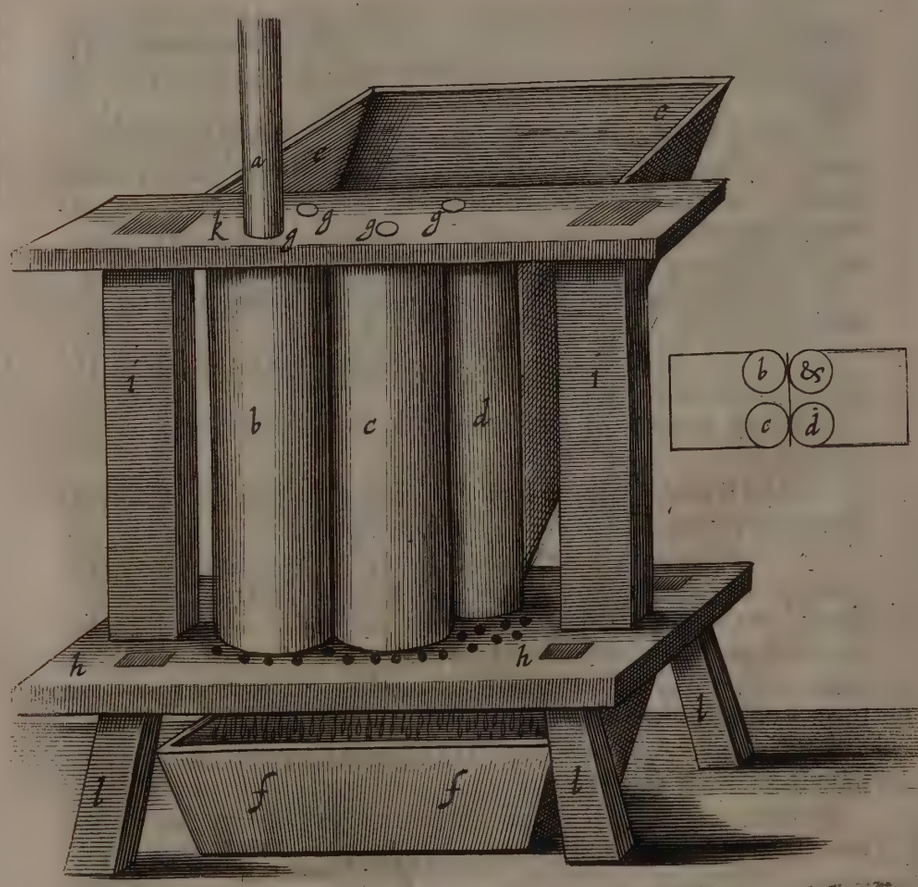
10. All *Cider* ſuffers *Fermentation* when Trees are *bloſſoming*, though it be never ſo old ; and *Cider* of very ripe *Fruit*, if *Bottl'd* in that *ſeaſon*, will acquire a *fragrancy* of the *Bloſſom*.

11. New *Cider*, and all *diluted* and watred *Ciders*, are great *Enemies* to the *Teeth*, and cauſe violent *pains* in them, and *Rheums* in the *Head*.

12. One *Rotten-Apple*, of the *ſame kind* with the *ſound*, corrupts a whole *Veſſel*, and makes it *Muſty*. But,

To *Conclude* this *Treatiſe*,

We will gratifie the *Cider-Maſter* with the *Conſtruction* of a new kind of *Preſs* brought into the *R. Society*, by their *Curator*, the ingenious Mr. *Hooke*, and, if perfectly underſtood by him that ſhall imitate it, recommended not only for its extraordinary *Diſpatch*, but for many other *vertues* of it, chiefly, the accurately *grinding* of the *Pulp*, and keeping the *Husks* from deſcending with the *Liquor*.



Explication

Explication of the *Figures.*

a The *Axis*, by which *four Cylinders* are to be mov'd, either by the force of *Men*, *Horses*, *Wind*, or *Water*, &c.

b. c. d *Three* of the 4 (visible) *Cylinders*, so placed, that those which are first to *bruise* the *Apples*, may stand at about *half* an *Inch*, or less *distance* from each other: Those that are to press out the *juice* may join as *close*, as they can well be made to move.

f. f The *Trough*, in which to receive the *Liquor*, running through certain *holes* made in the lower *Plate* there marked.

e. e The *Hopper*, made *tapering* towards the *bottom*, in which you fling the *Apples*, and supply them as they *sink* towards the *Cylinders*. Note, That such another *Hopper* is suppos'd to be also made, and fitted to this *fore-part* of the *Press*, but here omitted, that the *prospect* and *description* of the *Cylinders* may the better be laid open and *demonstrated.*

g. g. g The *Spindles* of each *Cylinder.*

h. h. i. i. k. k The *Frame*, consisting of two *Plates*, and two *Pilasters*, which hold the *Cylinders* together. *Note*, That the *Cylinders* must be made of excellent *Oken* Timber, or other *hard* Wood; the *dimensions* about 3 *foot* long, one *foot* and half *diameter*: The rest of the *Frame* for *thickness*, &c. of *size* and *strength* proportionable.

L L The *Legs* which support the *Frame.*

FIG. II.

Represents the *Ichnography* of the *First.*

FINIS.

Kalendarium Hortenſe:

OR THE

Gardners Almanac;

Directing what He is to do

MONETHLY,

THROUGHOUT THE

YEAR.

AND

What FRUITS and FLOWERS are in *Prime.*

The Third Edition, *with many uſeful* Additions.

By *JOHN EVELYN*, Eſq; *Fellow* of the *Royal Society.*

Virg. Geo. 2.---- *Labor actus in orbem.*

LONDON,

Printed by *John Martin* and *James Allestry*, Printers to the *Royal Society*, MDCLXIX.

A a

TO

ABRAHAM COWLEY Esq;

Sir,

THis *Second Edition* of my *Hortulan Kalendar* is yours, mindful of the honour once conferr'd on it, when you were pleas'd to suspend your nobler *Raptures*, and think it worthy your *transcribing*. It appears now with some *advantages* which it then wanted; because it had not *that* of publishing to the *World*, how infinitely I magnifie your *contempt* of (not to say) *revenge* upon it; whilst you still continue in the *possession* of your *Self*, and of that *repose* which few men understand, in exchange for those *pretty miseries* you have essay'd: O the sweet *Evenings* and *Mornings*, and all the *Day* besides which are yours,

------*while* Cowley's *made*
The happy Tennant of the Shade!

And the *Sun* in his *Garden*, gives him all he desires, and all that he would enjoy; the purity of visible Objects, and of true *Nature* before she was vitiated by Imposture or Luxury!

------*Books*, *Wise Discourse*, *Gardens and Fields*,
And all the joys that unmixt Nature yields,
Cowleys Miscellanies.

You gather the first *Roses* of the *Spring*, and *Apples* of *Autumn*: And as the *Philosopher* in *Seneca* desir'd only *Bread* and *Herbs* to dispute felicity with *Jupiter*; You vie happiness in a *thousand* easie, and sweet Diversions; not forgetting the innocent *Toils* which You cultivate; the *Leisure* and the *Liberty*, the *Books*, the *Meditations*, and above all, the learned and choice *Friendships* that you enjoy: Who would not, like *You*, *Cacher sa vie*? 'Twas

the wiſe *Impreſs* of *Balzac*, and of *Plutarch* before him; You give it *luſtre* and *interpretation*: I ſwear to You, Sir, it is what in the World I moſt inwardly breath after, and purſue, not to ſay that I envy Your *felicity*, deliver'd from the guilded *impertinences* of life, to enjoy the moments of a ſolid and pure *Contentment*; ſince thoſe who know how *uſefully* You employ this glorious *Receſs*, muſt needs be forc'd either to *imitate*, or, as I do, to *celebrate* Your *Example*.

J. EVELYN.

IN-

INTRODUCTION TO THE KALENDAR.

AS Paradiſe (*though of* Gods *own* Planting) *was no lon-* Gen. 2. 15.
ger Paradiſe, *than the* Man *was put into it, to* dreſs it and to keep it; *ſo nor will our* Gardens (*as neer as we can contrive them to the reſemblance of that bleſſed Abode*) *remain long in their* perfection, *unleſs they are alſo continually* cultivated. *But when we have ſo much celebrated the life and felicity of an excellent* Gard'ner, *as to think it preferable to all other diverſions whatſoever; it is not becauſe of the* leiſure *which he enjoys above other men; eaſe and opportunity which miniſters to vain and inſignificant delights; ſuch as* Fools *derive from ſenſual objects: We dare boldly pronounce it, there is not amongſt* Men *a more laborious life than is that of a good* Gard'ners; *but becauſe a labour full of* tranquility *and* ſatisfaction; Natural *and* Inſtructive, *and ſuch as (if any) contributes to* Piety *and* Contemplation, Experience, Health, *and* Longævity, munera nondum intellecta Deûm: *In ſum, a condition it is, furniſh'd with the moſt innocent, laudable, and pureſt of earthly felicities, and ſuch as does certainly make the neereſt approaches to that* Bleſſed ſtate, *where only they enjoy all things without pains; ſo as thoſe who were led only by the light of* Nature, *becauſe they could phanſie none more glorious, thought it worthy of entertaining the* Souls *of their departed* Heroes, *and moſt illuſtrious of Mortals.*

But to return to the Labour, *becauſe there is nothing* excellent *which is to be attain'd without it: A* Gard'ners *work is never at an end; It begins with the* Year, *and continues to the* next: *He prepares the* Ground, *and then he* Sows *it; after that he* Plants, *and then he gathers the* Fruits; *but in all the intermedial ſpaces he is careful to dreſs it; ſo as* Columella, *ſpeaking of this continual aſſiduity, tells us, A* Gard'ner *is not only to reckon upon the loſs of bare* twelve hours, *but of an whole* Year, *unleſs he perform what is at the preſent requiſite in its due period; & therefore is ſuch a* Monethly *Notice of his Task as depends upon the* Sig ns *&* Seaſons, *highly neceſſary.*

Prætermiſſas duodecim horas, *ſed Annum periiſſe, niſi ſua quaq; quod inſtat effecerit: Quare, neceſſaria eſt* Menſtrui *cujuſq; officii monitio ea, quæ pendet ex ratione* Syderum Cœli, *&c.* Col. R. R. l. ix.

Gardners had need each *Star* as well to know,
The *Kid*, the *Dragon*, and *Arcturus* too,
As *Sea-men*, who through diſmal ſtorms are wont
To paſs the Oyſter-breeding *Helleſpont.*

—tam ſunt Arcturi Sydera nobis
Hædorumq; dies ſervandi, & lucidus Anguis;
Quam quibus in patriam ventoſa per æquora vectis
Pontus, & oſtriferi ſauces temantur Abydi. Geor. 1.

All

All which duly weigh'd, how precious *the* time *is, how præcipitous the* Occasion, *how many things to be done in their just* Season, *and how intolerable a confusion will succeed the smallest* neglect, *after once a* Ground *is in order, we thought we should not attempt an unacceptable* Work, *if* here *we endeavour to present our* Gard'ners *with a compleat* Cycle *of what is requisite to be done throughout every* Moneth *of the* Year: *We say, each* Moneth; *because by dividing it into* Parts *so distinct, the* Order *in which they shall find each particular to be dispos'd, may not only render the* work *more facile and delightful; but redeem it from that extream perplexity, which for want of a constant and uniform* Method, *we find does so universally distract the vulgar sort of Them: They know not (for the most part) the* Seasons *when* things *are to be done*; and when at any time they come to know, there often falls out so many things to be done on the sudden, that some of them must of necessity be neglected for* that *whole* Year, *which is the greatest detriment to this* Mystery, *and frequently irrecoverable.*

* *Quia caput est in omni negotio, nosse quid agendum sit, &c.* Columel. *l.* 1. *c.* 7.

We are yet far from imposing (by any thing we have here alledg'd concerning these Menstrual Periods) *those nice and* hypercritical *Puntillos which some* Astrologers, *and such as pursue their* Rules, *seem to oblige our* Gard'ners *to; as if, forsooth, all were lost, and our pains to no purpose, unless the* Sowing *and the* Planting, *the* Cutting *and the* Pruning, *were perform'd in such and such an exact* minute *of the* Moon: In hac autem Ruris disciplina non desideratur ejusmodi scrupulositas. *There are indeed some certain* Seasons, *and* suspecta tempora, *which the prudent* Gard'ner *ought carefully (as much as in him lies) to prevent: But as to the rest, let it suffice, that he diligently follow the* Observations *which (by great* Industry) *we have* collected *together, and* here *present him, as so many* Synoptical Tables *calculated for his* Monethly *use, to the end he may pretermit nothing which is under his* Inspection, *and is* necessary, *or distract his* Thoughts *and* Employment *before the* Seasons *require it.*

Col de R. R. l. 9. *c.* 364.

And now, however This *may seem but a* Trifle *to some who esteem* Books *by the* bulk, *not the* benefit; *let them forbear yet to* despise *these few ensuing* Pages: *For never was any thing of this* pretence *more fully and ingenuously imparted; I shall not say to the* regret *of all our* Mercenary Gard'ners, *because I have much obligation to some above that* Epithete; *M.* Rose, Gard'ner *to His* Majesty, *and lately at* Essex-house *to Her* Grace *the* Duchess *of* Somerset; *and M.* Turner, *formerly of* Wimbleton *in* Surrey; *who being certainly amongst the most* expert *of their* Profession *in* England, *are no less to be* celebrated *for their free* communications *to the* Publick, *by divers* Observations *of theirs, which have furnish'd to this* Design. *And it is from the* Result *of very much* Experience, *and an extraordinary inclination to cherish so innocent and laudable a* Diversion, *and to incite an* Affection *in the* Nobless *of this* Nation *towards it, that I* begin *to* open *to them so many of the interior* Secrets, *and most precious* Rules *of this* Mysterious Art, *without* Imposture, *or invidious* Reserve. *The very* Catalogue *of* Fruits *and* Flowers, *for the*

the Orchard *and the* Parterre, *will gratifie the most innocent of the* Senses, *and whoever else shall be to seek a rare and universal* choice *for his* Plantation.

Touching the Method, *it is so obvious, that there needs no farther direction*; *and the* Consequent *will prove so certain, that a* Work *of the* busiest *pains is by this little* Instrument *rendred the most facile and agreeable, as by which you shall continually preserve your* Garden *in that perfection of* beauty *and* lustre, *without* confusion *or* prejudice: *Nor indeed could we think of a more comprehensive* Expedient, *whereby to assist the frail and torpent* Memory *through so* multifarious *and numerous an* Employment (*the daily* subject *of a* Gard'ners *care*) *than by the* Oeconomy *and* Discipline *which we have here consign'd it to, and which our Industrious* Gard'ner *may himself be continually* Improving *from his own* Observations *and* Experience. *In the mean time, we have at the instance of very many* Persons, *who have been pleas'd to acknowledge the* effects *of a former less perfect* Impression, *thought good to publish this* third Edition *in a smaller* Volume, *that as an* Enchiridion *it may be the more ready and useful*; *but the* Kalendar *might be considerably augmented, and recommend it self to more* Universal use, *by taking in the* Monethly Employments *of all the parts of* Agriculture, *as they have been begun to us in* Columella, Palladius, de Serres, Augustino Gallo, Vincenzo Tanara, Herrera, *our* Tusser, Markham, *and others*; *especially if* well *and* judiciously *applied to the* Climate *and several* Countries: *but it were* here *besides our* Institution, *nor would the* Pages *contain them*; *what is yet found* vacant *has been* purposely *left, that our* Gard'ner *may supply as he finds cause*; *for which reason likewise we have rang'd both the* Fruits *and* Flowers *in* Prime *after somewhat a* promiscuous *Order, and not after the* Letters *of the* Alphabet, *that the* Method *might be pursu'd with the least disorder. Lastly,*

Col. de R. R. lib. 11. c. 11. Pall. lib. 1. Tit. 1.

The Fruits *and* Flowers *in* Prime *are to be as well considered in relation to their* lasting *and* continuance, *as to their* maturity *and* beauty.

J. E.

THe *Reader* may please to take *notice*, that there is newly printed a *Second Edition* of the *French Gard'ner*, and M. *Rose*'s *Vineyard*. Sold by *John Crook* in *Duck-lane*, and other *Book-sellers*.

Kalendarium

Kalendarium Hortense.

≈

Note, that for the Rising and Setting of the Sun, and Length of the days, I compute from the first of every Moneth. London Lat.

Sun { rises 08h-00m / sets 04-00 } JANUARY { Hath Days xxxi. } long 8h00m

To be done

In the *Orchard*, and *Olitory-Garden*.

Trench the Ground, and make it ready for the *Spring*: prepare also *Soil*, and use it where you have occasion: Dig *Borders*, *&c. uncover* as yet *Roots* of *Trees*, where *Ablaqueation* is requisite.

Plant *Quick-sets*, and Transplant *Fruit-trees*, if not finish'd Set * *Vines*, and begin to *prune* the *old*: *Prune* the branches of *Orchard fruit-trees*; especially the long planted, and that towards the *decrease*: but for such as are newly planted, they need not be disbranched till the *Sap* begins to stir, that so the wound may be healed with the *Scar*, and *Stub*, which our frosts do frequently leave: In this work cut off all the shoot of *August*, unless the nakedness of the place incline you to spare it: *Consult my* French Gard'ner, *part* 1. *sect.* 3. for this is a most material Address. You may now begin to *Naile*, and trim your *Wall-fruit*, and *Espaliers*.

* *See M.* Roses *Vineyard Vindicated*, c. 5.

Cleanse *Trees* of *Moss*, *&c.* the *Weather* moist.

Gather *Cyons* for *Graffs* before the *buds* sprout; and about the latter end, *Graff* them in the *Stock*, *Pears*, *Cherries* and *Plums*, and remove your *Kernel-stocks* to more commodious distances in your * Vide *March* *Nursery*, cutting off the * *top-root*: Set *Beans*, *Pease*, *&c.*

Sow also (if you please) for early *Caully-flowers*.

Sow *Chervil*, *Lettuce*, *Radish*, and other (more delicate) *Sallet-ings*, if you will raise in the *Hot-bed*.

In over-wet, or hard weather, *cleanse*, *mend*, *sharpen* and prepare *Garden-tools*.

Turn up your *Bee-hives*, and sprinkle them with a little warm and sweet *Wort*; do it dextrously.

Fruits in *Prime*, and yet *lasting*.

Apples.

Kentish-pepin, *Russet-pepin*, *Golden-pepin*, *French-pepin*, *Kirton-pepin*, *Holland-pepin*, *John-apple*, Winter-*Queening*, *Marigold*, *Harvey-apple*, *Pome-water*, *Pome-roy*, *Golden-Doucet*, *Reineting*, *Lones-Pearmain*, Winter-*Pearmain*, *&c.*

Pears.

Winter-*Musk* (bakes well) Winter-*Norwich* (excellently baked) Winter-*Bergamot*, Winter-*Bon-crestien*, both *Mural*: the great *Surrein*, &c.

♒

Sun { rises 08h-00m / sets 04-00 } JANUARY { Hath Days xxxi. } long 8h 00m

To be done

In the *Parterre*, and *Flower-Garden.*

SEt up your *Traps* for *Vermine*; especially in your *Nurseries* of *Kernels* and *Stones*, and amongst your *Bulbous-Roots*: About the middle of this *Moneth*, plant your *Anemony-roots*, and *Ranunculus's*, which you will be secure of, without *covering*, or farther trouble: Preserve from too great, and continuing *Rains* (if they happen) *Snow* and *Frost*, your choicest *Anemonies*, and *Rannunculus's* sow'd in *September* or *October* for earlier *Flowers*: Also your *Carnations*, and such *Seeds* as are in peril of being wash'd out, or over-*chill'd* and *frozen*; covering them under *shelter*, and striking off the *Snow* where it lies too weighty; for it certainly rots, and bursts your early-set *Anemonies* and *Ranunculus's*, *&c.* unless planted *now* in the *Hot-bed*; for now is the *Season*, and they will *flower* even in *London*. Towards the *end*, earth-up, with fresh and light mould, the *Roots* of those *Auriculas* which the *frosts* may have uncover'd; filling up the *chinks* about the sides of the *Pots* where your choicest are set: but they need not be *hous'd*; it is a hardy Plant.

Flowers in *Prime*, or yet *lasting.*

WInter-*Aconite*, some *Anemonies*, Winter-*Cyclamen*, Black-*Hellebor*, *Brumal-Hyacinth*, *Oriental-Jacinth*, *Levantine-Narcissus*, *Hepatica*, *Prim-roses*, *Laurus-tinus*, *Mezereon*, *Præcoce Tulips*, *&c.* especially, if rais'd in the *Hot-bed*. *Note*,

That both these *Fruits*, and *Flowers*, are more *early*, or *tardy*, both as to their prime *Seasons* for *eating*, and perfection of *blowing*, according as the *Soil*, and *Situation* are qualified by *Nature*, or *Accident*. *Note also*,

That in this *Recension* of *Monethly Flowers*, it is to be understood for the *whole* period that any *Flower* continues, from its first *appearing*, to its final *withering*.

♓

Sun { rises 07h-13m / sets 04 -45 } FEBRUARY { Hath Days xxviii. } long 9h 24m

To be done

In the *Orchard*, and *Olitory-Garden*.

PRune *Fruit-trees*, and *Vines* as yet; For now is your Season to *bind*, *plash*, *naile*, and *dresse*, without danger of *Frost*: *This* to be understood of the most tender and delicate *Wall-fruit*, not finished before; do this before the *buds* and *bearers* grow turgid; and yet in the *Nectarine* and like delicate Mural-fruit, the later your *Pruning*, the better, whatever has been, and still is, the contrary custom. Remove *Graffs* of former years *Graffing*. Cut, and lay *Quick-sets*; and *trim* up your *Palisade Hedges*, and *Espaliers*. Plant *Vines* as yet, other *Shrubs*, *Hops*, *&c.*

Set all sorts of *Kernels* and *stony-Seeds*. Also sow *Beans*, *Pease*, *Rounsevals*, *Corn-sallet*, *Marygold*, *Aniseed*, *Radish*, *Parsneps*, *Carrots*, *Onions*, *Garlick*, *&c.* and plant *Potatoes* in your worst ground.

Now is your Season for *Circumposition* by *Tubs* or *Baskets* of *Earth*, and for laying of *Branches* to take root. You may plant forth your *Cabbage-plants*.

Rub *Moss* off your *Trees* after a soaking *Rain*, and scrape and cleanse them of *Cankers*, *&c.* draining away the *wet* (if need require) from the too much moistned *Roots*, and earth up those *Roots* of your *Fruit-trees*, if any were uncovered. Cut off the *Webbs* of *Caterpillars*, *&c.* (from the Tops of *Twigs* and *Trees*) to burn. Gather *Worms* in the *Evenings* after *Rain*.

Kitchen-Garden herbs may now be planted, as *Parsly*, *Spinage*, and other hardy *Pot-herbs*. Towards the *middle*, or *latter end* of this *Moneth*, till the *Sap* rises briskly, *Graff* in the *Cleft*, and so continue till the last of *March*; they will hold, *Apples*, *Pears*, *Cherries*, *Plums*, *&c.* the *New-Moon*, and the *Old Wood* is best. Now also plant out your *Caully-flowers* to have early; and begin to make your *Hot-bed* for the first *Melons* and *Cucumbers* to be sowed in the Full; but trust not altogether to them. Sow *Asparagus*. Lastly,

Half open your *passages* for the *Bees*, or a little before (if *weather* invite;) but continue to feed weak *Stocks*, *&c.*

Fruits in *Prime*, or yet *lasting*.

Apples.

KEntish, *Kirton*, *Russet*, *Holland Pepins*; *Deux-ans*, Winter *Queening*, *Harvey* sometimes, *Pome-water*, *Pome-roy*, *Golden Doucet*, *Reineting*, *Lones Pearmain*, Winter *Pearmain*, &c.

Pears.

Bon-Chrestien of Winter, Winter *Poppering*, Little *Dagobert*, &c.

♓

Sun { rises-07h-13m / sets-04-45 } **FEBRUARY** { Hath Days xxviii. / long-09h-24m }

To be done

In the *Parterre*, and *Flower-Garden.*

CONtinue *Vermine Traps*, &c.

Sow *Alaternus* seeds in *Cases*, or *open Beds*; cover them with *thorns*, that the *Poultry* scratch them not out. Sow also *Larks-spurs*, &c.

Now and then *air* your hous'd *Carnations*, in *warm* days especially, and mild *showers*; but if like to prove *cold*, set them in again at night.

Furnish (now towards the end) your *Aviaries* with *Birds* before they couple, &c.

Flowers in *Prime*, or yet *lasting.*

WInter *Aconite*, single *Anemonies*, and some double, *Tulips præcoce*, *Hyacinthus Stellatus*, *Vernal Crocus*, Black *Hellebore*, single *Hepatica*, *Persian Iris*, *Leucoium bulbosum*, *Dens Caninus* three-leav'd, *Vernal Cyclamen* white and red, *Mezereon*, *Ornithogal: max: alb:* Yellow *Violets* with large leaves, early *Daffodils*, &c.

♈

Sun { rises-06h-19m / sets--05h-41m } MARCH { Hath Days xxxi. } long-11h-22m

To be done

In the *Orchard*, and *Olitory-Garden*.

YEt *Stercoration* is seasonable, and you may plant what *Trees* are left, though it be something of the latest, unless in very backward, or *moist* places.

Now is your chiefest and best time for raising on the Hot-bed *Melons*, *Cucumbers*, *Gourds*, *&c.* which about the *sixth*, *eighth*, or *tenth* day will be ready for the Seeds; and eight days after *prick* them forth at distances, according to the *Method*, *&c.*

If you will have them *later*, begin again in ten or twelve days after the first; and so a third time to make *Experiments*. Remember to preserve the *Hot-bed* as much as possible from *Rain*; for cool him you may easily if too violent, but not give it a competent heat if it be spent, without new-making.

Graff all this *Moneth*, beginning with *Pears*, and ending with *Apples*, unless the *Spring* prove extraordinary forwards.

Now also plant *Peaches* and *Nectarines*, but cut not off the *top-roots*, as you do of other Trees; for 'twill much prejudice them: Prune last years *Graffs*, and cut off the *heads* of your *budded-stocks*. Take off the *Littier* from your Kirnel-beds; see *Octob.* or you may forbear till *April*.

You may as yet cut *Quick-sets*, and cover such *Tree-roots* as you laid bare in *Autumn*.

It were profitable now also to *top* your *Rose-trees* a little with your Knife, neer a *leaf-bud*, and to prune off the dead and withered branches, keeping them lower than the custom is, and to a single *Stem*.

Slip, and set *Sage*, *Rosemary*, *Lavender*, *Thyme*, &c.

Sow in the beginning *Endive*, *Succory*, *Leeks*, *Radish*, *Beets*, *Chard-Beet*, *Scorzonera*, *Parsnips*, *Skirrets*, *Parsley*, *Sorrel*, *Bugloss*, *Borrage*, *Chervil*, *Sellery*, *Smalladge*, *Alisanders*, *&c.* Several of which continue many years without renewing, and are most of them to be *blanch'd* by laying them under *littier* and earthing up.

Sow also *Lettuce*, *Onions*, *Garlick*, *Orach*, *Purslan*, *Turneps* (to have early) monethly *Pease*, *&c.* these *annually*.

Transplant the *Beet-chard* which you sowed in *August*, to have most ample *Chards*.

Sow also *Carrots*, *Cabbages*, *Cresses*, *Fennel*, *Majoran*, *Basil*, *Tobacco*, *&c.* And *transplant* any sort of *Medicinal Herbs*.

Mid-*March* dress up, and string your *Strawberry-beds*, and uncover your *Asparagus*, spreading and loosning the Mould about them, for their more easie penetrating: Also may you now transplant *Asparagus* roots to make new *Beds*.

By this time your *Bees* sit; keep them close Night and Morning, if the weather prove ill.

Turn your *Fruit* in the Room where it lies, but open not yet the *windows*.

Fruits in *Prime*, or yet *lasting*.

Apples.

GOlden *Ducket*, [*Doucet*] *Pepins*, *Reineting*, *Lones Pearmain*, Winter *Pearmain*, *John Apple*, &c.

Pears.

Later *Bon-Chrestien*, Double *Blossom Pear*, &c.

♈

Sun { rises-06h-19m / sets-05--41 } MARCH { Hath Days xxxi. / long-11h-22m }

To be done

In the *Parterre*, and *Flower-Garden*.

Take, and *bind* up your weakeſt *Plants* and *Flowers* againſt the Winds, before they come too fiercely, and in a moment *proſtrate* a whole *years* labour.

Plant *Box*, &c. in *Parterres*: Sow *Pinks*, *Sweet-williams*, and *Carnations*, from the *middle* to the *end* of this *Month*. Sow *Pine-kernels*, *Firr-ſeeds*, *Bays*, *Alaternus*, *Philyrea*, and moſt *perennial Greens*, &c. Or you may ſtay till ſomewhat *later* in the *Month*. Sow *Auricula-ſeeds* in *pots* or *caſes*, in fine *willow* earth, a little *loamy*; and place what you ſow'd in *September* (which is the more proper Seaſon) now in the *ſhade*, and *water* it.

Plant ſome *Anemony roots* to bear late, and ſucceſſively; eſpecially in, and about *London*, where the *Smoak* is any thing tolerable; and if the *Seaſon* be very dry, *water* them well once in *two* or *three* days, as likewiſe *Ranunculus's*. *Fibrous* roots may be *tranſplanted* about the middle of this *Month*; ſuch as *Hepatica's*, *Primroſes*, *Auricula's*, *Cammomile*, *Hyacinth Tuberoſe*, *Matricaria*, *Gentianella*, *Hellebore* and other *Summer Flowers*; Set *Leucoium*; Slip the *Keris* or *Wall-flower*; and towards the end, *Lupines*, *Convolvulus's*, *Spaniſh*, or ordinary *Jaſmine*. You may now a little after the *Æquinox*, prune *Pine* and *Fir-trees*: See *Septemb.*

Towards the *middle*, or latter end of *March* ſow on the *Hot-bed* ſuch Plants as are late bearing *Flowers* or *Fruit* in our *Climate*; as *Balſamine*, and *Balſamum mas*; *Pomum Amoris*, *Datura*, *Æthiopic Apples*, ſome choice *Amaranthus*, *Dactyls*, *Geraniums*, *Hedyſarum Clypeatum*, *Humble*, and *Senſitive* Plants; *Lentiſcus*, *Myrtle-berries* (ſteep'd a while), *Capſicum Indicum*, *Canna Indica*, *Flos Africanus*, *Mirabile Peruian*: *Naſturtium Ind.* *Indian Phaſeoli*, *Volubilis*, *Myrrh*, *Carrobs*, *Marococ*, five *Flos Paſſionis*, and the like *rare*, and *exotic* Plants which are brought us from *hot* Countries. Note, that the *Naſturtium Ind.* *African Marygolds*, *Volubilis*, and ſome others, will come (though not altogether ſo forwards) in the *Cold-bed* without *Art*. But the *reſt* require much, and conſtant *heat*, and therefore ſeveral *Hot-beds*, 'till the common earth be very warm by the advance of the *Sun*, to bring them to a due ſtature, and perfect their *Seeds*: Therefore your choiceſt *Amaranthus* being riſen pretty high, remove them into another temperate *Hot-bed*; the ſame you may do with your *African*, and *Senſitive* Plants, eſpecially, which always keep under Glaſſes.

About the expiration of this *Month* carry into the *ſhade* ſuch *Auriculas*, Seedlings, or Plants as are for their *choiceneſs* reſerved in *Pots*.

Tranſplant alſo *Carnation ſeedlings*, giving your *Layers* freſh *earth*, and ſetting them in the *ſhade* for a *week*; then likewiſe cut off all the *ſick* and infected *leaves*; for now you may ſet your choice ones out of *Covert*, as directed in *February*.

Now do the *farewel-froſts*, and *Eaſterly-winds* prejudice your choiceſt *Tulips*, and ſpot them; therefore cover ſuch with *Mats* or *Canvas* to prevent *freckles*, and ſometimes deſtruction. The ſame care have of your moſt precious *Anemonies*, *Auricula's*, *Chamæ-iris*, *Brumal Jacynths*, early *Cyclamen*, &c. Wrap your ſhorn *Cypreſs* tops with ſtraw *wiſps*, if the *Eaſtern blaſts* prove very tedious; and forget not to cover with dry *ſtraw*, or *Peaſe-hame*, your young expoſed *Ever-greens* as yet Seedlings; ſuch as *Firr*, *Pine*, *Phillyrea*, *Bays*, *Cypreſs*, &c. 'till they have paſs'd *two* or *three* years in the *Nurſery*, and are fit to be *tranſplanted*; for the ſharp *Eaſterly* and *Northerly* winds tranſpierce, and dry them up. Let this alſo caution you upon all ſuch extremities of *weather*, during the whole *Winter*; but be mindful to uncover them in all benigne, and tolerable ſeaſons and intermiſſions; it being theſe acute *Winds*, and ſeldom, or never the hardeſt *Froſts*, or *Snows* which do the miſchief. About the *end* uncover even your choicer *Plants*, but with *Caution*; for the tail of the *Froſts* yet continuing, and ſharp *Winds*, with the ſudden darting heat of the *Sun*, ſcorch and deſtroy them in a moment: and in ſuch *weather* neither *ſow*, nor *tranſplant*.

Sow *Stock-gilly-flower* ſeeds in the *Full*, to produce double *flowers*.

Now may you ſet your *Oranges*, *Lemmons*, *Myrtles*, *Oleanders*, *Lentiſcs*, *Dates*, *Aloes*, *Amomums*, and like tender Trees and Plants in the *Portico*, or with the *windows*, and *doors* of the *Green-houſes* and *Conſervatories* upon for eight or ten days before *April*, or earlier, if the *Saeſon* invite (that is, if the ſharp *winds* be paſt) to acquaint them gradually with the *Air*; I ſay, gradually, and carefully; for this change is the moſt *Critical* of the whole year; truſt not therefore the *Nights* too confidently, unleſs the *weather* be thorowly ſetled: Now is alſo your Seaſon to raiſe *Stocks* to bud *Oranges* and *Lemmons* on, by ſowing the *Seeds*; and ſome of the hardieſt *Ever-greens* may be tranſplanted, eſpecially, if the weather be *moiſt* and temperate.

Laſtly, Bring in materials for the *Birds* in the *Aviary* to build their *Neſts* withal.

Flowers in *Prime*, and yet *laſting*.

Anemonies, Spring *Cyclamen*, Winter *Aconite*, *Crocus*, *Bellis*, white and black *Hellebor*, ſingle and double *Hepatica*, *Leucoion*, *Chamæ-iris* of all colours, *Dens Caninus*, *Violets*, *Fritillaria*, *Chelidonium* ſmall with double Flowers, *Hermodactyls*, *Tuberous Iris*, *Hyacinth Zeboin*, *Brumal*, *Oriental*, *&c.* *Junquils*, great *Chalic'd*, *Dutch Mezereon*, *Perſian Iris*, *Auricula's*, *Narciſſus* with large tufts, common, double and ſingle. *Primroſes*, *Præcoce Tulips*, *Spaniſh Trumpets* or *Junquilles*; *Violets*, yellow *Dutch Violets*, *Ornithogalum max*: *alb*: *Crown Imperial*, *Grape Flowers*, *Almonds* and *Peach bloſſoms*, *Rubus odoratus*, *Arbor Judæ*, &c.

♉

Sun { rises-05h-18m / sets--05h-42m } APRIL { Hath Days xxx. / long-13h-23m }

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw sweet *Majoran*, *Hyssop*, *Basil*, *Thyme*, Winter-*Savoury*, *Scurvey-grass*, and all fine and tender *Seeds* that require the *Hot-bed*.

Sow also *Lettuce*, *Purslan*, *Caully-flower*, *Radish*, *&c.*

Plant *Artichock-slips*, *&c.*

Set *French-beans*, *&c.* and sow *Turneps* to have them early.

You may yet slip *Lavander*, *Thyme*, *Peneroyal*, *Sage*, *Rose-mary*, *&c.*

Towards the *middle* of this *Moneth* begin to plant forth your *Melons*, and *Cucumbers*, and so to the *later end*; your *Ridges* well prepar'd.

Gather up *Worms*, and *Snails*, after evening *showers*; continue this also after all Summer-rains.

Open now your *Bee-hives*, for now they *hatch*; look carefully to them, and prepare your *Hives*, *&c.*

Fruits in *Prime*, or yet *lasting*.

Apples.

PEpins, *Denxans*, *West-berry-apple*, *Russeting*, *Gilly-flowers*, flat *Reinet*, *&c.*

Pears.

Later *Bon-crestien*, *Oak-pear*, *&c.* double *Blossom*, *&c.*

♂

Sun { rises-05h-18m / sets-05--42 }

APRIL

{ Hath Days xxx. } long-13h-23m

To be done

In the *Parterre*, and *Flower-Garden*.

SOw divers *Annuals* to have *Flowers* all *Summer*; as double *Marigolds*, *Digitalis*, *Delphinium*, *Cyanus* of all sorts, *Candy-tufts*, Garden *Pansy*, *Muscipula*, *Scabious*, *Scorpoides*, *Medica*, *Holy-hocks*; *Columbines*, which renew every five or six years, else they will degenerate, *&c.*

Continue *new*, and fresh *Hot-beds* to entertain such *exotic* Plants as arrive not to their perfection without them, till the *Air* and *common earth* be qualified with sufficient *warmth* to preserve them abroad: A *Catalogue* of these you have in the former *Moneth*.

Transplant such *Fibrous-roots* as you had not finish'd in *March*; as *Violets*, *Hepatica*, *Primroses*, *Hellebor*, *Matricaria*, *&c.* Place *Auricula* Seedlings in the shade.

Sow *Pinks*, *Carnations*, which you may continue to trim up, and cleanse from dead and rotten leaves, *viz.* your old roots: Sow *Sweet-Williams*, &c. to *flower* next year: this after rain.

Set *Lupines*, *&c.*

Sow *Lucoium* in Full-Moon, sprinkle it thin, frequently remove them, and replant in moist weather the following *Spring*.

Sow also yet *Pine-kernels*, *Fir-seeds*, *Phillyrea*, *Alaternus*, and most *perennial Greens*. Vide *Sept.*

Now take out your *Indian Tuberoses*, parting the *Off-sets* (but with care, lest you break their *fangs*) then *pot* them in * *natural* (not *forc'd*) Earth; a layer of *rich* mould *beneath*, and *about this*, natural *earth* to nourish the *fibres*, but not so as to touch the *Bulbs*: then plunge your *pots* in a *Hot-bed* temperately *warm*, and give them no *water* till they *spring*, and then *set* them under a *South-wall*: In dry weather *water* them freely, and expect an incomparable *flower* in *August*: Thus likewise treat the *Narcissus* of *Japan*, or *Garnsey-Lilly*, for a later *flower*; although that nice *curiosity*, set only in a warm corner, expos'd to the *South*, without any removal at all for many years, has sometimes prospered better: the protuberant *fangs* of the *Yuca* are to be treated like the *Tuberoses*. Make much of this *precious* Direction.

* *Vide May.*

Set out and expose *Flos Cardinalis*: Slip, and set *Marums*: Water *Anemonies*, *Ranunculus's*, and Plants in *Pots* and *Cases* once in two three days, if *drouth* require it. But carefully protect from violent *storms* of *Rain*, *Hail*, and to the too parching *darts* of the *Sun*, your *Pennach'd Tulips*, *Ranunculus's*, *Anemonies*, *Auricula's*, covering them with *Matrasses* supported on *cradles* of *hoops*, which have now in readiness. Now is the *Season* for you to bring the choice and tender *shrubs*, *&c.* out of the *Conservatory*; such as you durst not adventure forth in *March*: let it be in a *fair* day; only your *Orange-trees* may remain in the *house* till *May*, to prevent all danger. You may now *graff* these tender shrubs, *&c.* by *Approach*, viz. *Oranges*, *Lemmons*, *Pomegranads*, *Jasmins*, *&c.*

Now, towards the *end* of *April*, you may *Transplant*, and *Remove* your tender *shrubs*, *&c.* as *Spanish Jasmins*, *Myrtles*, *Oleanders*, young *Oranges*, *Cyclamen*, *Pomegranads*, *&c.* But first let them begin to *sprout*; placing them a *fort-night* in the *shade*: but about *London* it may be better to defer this work till mid-*August*: *Vide* also *May*, from whence take Directions how to refresh and trim them: Prune now your *Spanish Jasmine* within an *inch* or two of the *stock*: but first see it begin to *shoot*. Mow *Carpet-walks*, and ply *Weeding*, *&c.*

Towards the *end* (if the cold *winds* are past) and especially after *showers*, clip *Phillyrea*, *Alaternus*, *Cypress*, *Box*, *Myrtyls*, *Barba Jovis*, and other *tonsile* shrubs, *&c.*

Flowers in *Prime*, or yet *lasting*.

ANemonies, *Ranunculus's*, *Auricula Ursi*, *Chamæ-iris*, *Crown Imperial*, *Caprifolium*, *Cyclamen*, *Bell-flower*, *Dens Caninus*, *Fritillaria*, *Gentianella*, *Hypericum frutex*, double *Hepatic's*, *Jacynth* starry, double *Daisies*, *Florence-Iris*, tufted *Narcissus*, white, double and common, *English* double: *Primrose*, *Cowslips*, *Pulsatilla*, *Ladies-smock*, *Tulips* medias, *Ranunculus's* of *Tripoly*, white *Violets*, *Musk-Grape-flower*, *Geranium*, *Radix Cava*, *Calitha palustris*, *Parietaria Lutea*, *Leucoium*, *Persian Lillies*, *Paonies*, double *Jonquils*, *Muscaria* revers'd, *Cochlearia*, *Persian Jasmine*, *Acanthus*, *Lilac*, *Rosemary*, *Cherries*, *Wall-pears*, *Almonds*, *Abricots*, *Peaches*, *White-thorn*, *Arbor Judæ* blossoming, *&c.*

II

Sun { rises-04h-25m / sets-07--35 } MAY { Hath Days xxxi. } long-15h-09m

To be done

In the *Orchard*, and *Olitory-Garden.*

SOw *Sweet Majoran*, *Basil*, *Thyme*, hot and *Aromatic Herbs* and *Plants* which are the most tender.

Sow *Purslan*, to have young: *Lettuce*, large-sided *Cabbage*, painted *Beans*, *&c.*

Look carefully to your *Mellons*; and towards the end of this *Moneth*, forbear to cover them any longer on the *Ridges* either with *Straw*, or *Matrasses*, *&c.*

Ply the *Laboratory*, and distill *Plants* for *Waters*, *Spirits*, *&c.*

Continue *Weeding* before they run to *Seeds.*

Now set your *Bees* at full *Liberty*, look out often, and expect *Swarms*, *&c.*

Fruits in *Prime*, or yet *lasting.*

Apples.

PFpins, *Deuxans* or *John-apples*, *West-berry-apples*, *Russeting*, *Gilly-flower-apples*, the *Maligar*, &c. *Codling.*

Pears.

Great *Kairville*, Winter *Bon-Cretienne*, Black-pear of *Worcester Surrein*, Double-*Blossom-pear*, *&c.*

Cherries, *&c.*

The *May-Cherry.* *Strawberries*, *&c.*

II

Sun { rises-04h-25m / sets-07--35 } MAY { Hath Days xxxi. } long-15h-09m

To be done

In the *Parterre*, and *Flower-Garden.*

NOw bring your *Oranges*, &c. boldly out of the *Conservatory*; 'tis your only *Season* to *Transplant* and *Remove* them: let the *Cases* be fill'd with *natural earth* (such as is taken the first half *spit*, from just under the *Turf* of the best *Pasture* ground, in a place that has been well *fother'd* on) mixing it with one part of rotten *Cow-dung*, or very mellow *Soil* screen'd, and prepar'd some time before; if this be too *stiff*, sift a little *Lime* discreetly with it, with the rotten sticks of *Willows*: Then cutting the too thick, and extravagant *Roots* a little, especially at bottom, set your *Plant*; but not too *deep*; rather let some of the *Roots* appear: Lastly, *settle* it with temperately enrich'd *water* (such as is impregnated with *Neat* and *Sheeps-dung* especially, set, and stirr'd in the *Sun* some few days before; but be careful, not to drench them too much at first; but giving it by degrees day after day, without touching with it the *Stem*:) having before put some *rubbish* of *Lime-stones*, *pebbles*, *shells*, *Faggot-spray*, or the like at the bottom of the *Cases*, to make the *moisture* passage, and keep the *earth* loose for fear of rotting the *fibres*: See *Novemb.* Then set them in the *shade* for a *fort-night*, and afterwards expose them to the *Sun*.

Give now also all your *hous'd plants* (such as you do not think requisite to take out) fresh *Earth* at the *surface*, in place of some of the old *Earth* (a hand-depth or so) and loosning the rest with a *fork* without wounding the *Roots*: let this be of excellent rich * *soil*, such as is throughly *consumed*, and will *sift*, that it may *wash in* the *vertue*, and comfort the *Plant*: *Brush*, and *cleanse* them likewise from the *dust* contracted during their Enclosure. *These two last directions have till now been kept as considerable* Secrets *amongst our* Gard'ners: *vide August* and *September*.

* *Vide* July.

Shade your *Carnations*, and *Gilly-flowers* after *mid-day* about this *Season*: Plant also your *Stock-gilly-flowers* in beds, full *Moon*.

Continue watering *Ranunculus's*: Transplant forth your *Amaranthus's*, where you would have them stand: Sow *Antirrhinum*; or you may set it.

Gather what *Anemony-seed* you find ripe, and that is worth saving, preserving it very dry.

Cut likewise the *Stalks* of such *Bulbous-flowers* as you find dry.

Towards the *end* take up those *Tulips* which are dri'd in the *stalk*; covering what you find to lie *bare* from the *Sun* and *showers*.

Flowers in *Prime*, or yet *lasting*.

LAte set *Anemonies* and *Ranunculus omn. gen. Anapodophylon*, *Blattaria*, *Chamæ-iris*, *Augusti-fol. Cyanus*, *Cytisus Maranthe*, *Cyclamen*, *Heleborine*, *Columbines*, *Caltha palustris*, double *Cotyledon*, *Digitatis*, *Fraxinella*, *Gladiolus*, *Geranium*, *Horminum Creticum*, yellow *Hemerocallis*, strip'd *Jacynth*, early *Bulbous Iris*, *Asphodel*, yellow *Lillies*, *Lychnis*, *Jacea*, *Bellis*, double, white and red, *Millefolium luteum*, *Phalangium*, *Orchis*, *Lilium Convallium*, *Span. Pinkes*, *Deptford Pinkes*, *Rosa* common, *Cinnamon*, *Guelder* & *Centifol.* &c. *Oleaster*, *Chery-bay*, *Trachelium*, *Cowslips*, *Hesperis*, *Antirrhinum*, *Syringa's*, *Sedums*, *Tulips* Serotin, &c. *Valerian*, *Veronica* double and single, *Musk Violets*, *Ladies Slipper*, *Stock-gilly-flowers*, *Spanish Nut*, *Star-flower*, *Chalcedons*, ordinary *Crow-foot*, red *Martagon*, *Bee-flowers*, *Campanula's* white and blew, *Persian Lilly*, *Hony-suckles*, *Bugloss*, *Homers Moly*, and the white of *Dioscorides*, *Pansys*, *Prunella*, purple *Thalictrum*, *Sisymbrium* double and simple, *Leucoium bulbosum serotinum*, *Peonies*, *Sambucus*, *Rosemary*, *Stœchas*, *Sedum Narcissus*, *Barba Jovis*, *Laurus*, *Satyrion*, *Oxyacanthus*, *Tamariscus*, *Apple-blossoms*, &c.

♋

Sun { rises-03h-51m / sets--08h-09m } JUNE { Hath Days xxx. } long-16h-17m

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw *Lettuce, Chervil, Radish, &c.* to have young, and tender *Salleting.*

About the *midst* of *June* you may Inoculate *Peaches, Abricots, Cherries, Plums, Apples, Pears*, &c.

You may now also (or in *May* before) cleanse *Vines* of exuberant *branches* and *tendrels*, cropping (not cutting) and stopping the second *joint* immediately before the *Fruit*, and some of the under branches which bear no *fruit*; especially in young *Vineyards* when they first begin to *bear*, and thence forwards; binding up the rest to *props.*

Gather *Herbs* in the *Full* to keep *dry*; they keep and retain their *virtue* and *sweet smell*, better *dry'd* in the *shade* than *Sun*, whatever some pretend.

Now is your *Season* to distill *Aromatick Plants*, &c.

Water lately planted *Trees*, and put moist, and half rotten *Fearn, &c.* about the foot of their *Stems*, having first clear'd them of weeds, and a little stirred the earth.

Look to your *Bees* for *Swarms*, and *Casts*; and begin to destroy *Insects* with *Hoofs, Canes*, and tempting *baits, &c.* Gather *Snails* after *Rain, &c.*

Fruits in *Prime*, or yet *lasting.*

Apples.

Juniting (first ripe) *Pepins, John-apples, Robillard*, Red *Fennouil*, &c. French.

Pears.

The *Mandlin* (first ripe) *Madera, Green-Royal*, St. *Laurence-pear*, &c.

Cherries, *&c.*

Duke, Flanders, Heart { Black. / Red. / White.

Luke-ward, early *Flanders*, the *Common-Cherry*, *Spanish*-black, *Naples* Cherries, *&c.*

Rasberries, Corinths, Straw-berries, Melons, &c.

♋

Sun { rises-03h-51m / sets-08--09 }

JUNE

{ Hath Days xxx. } { long-16h-17m }

To be done
In the *Parterre*, and *Flower-Garden.*

TRansplant *Autumnal Cyclamens* now if you would change their place, otherwise let them *ſtand.* Take up *Iris, Chalcedon.*

Gather the ripe *Seeds* of *Flowers* worth the ſaving, as of choiceſt *Oriental Jacynth, Narciſſus* (the two leſſer, pale ſpurious *Daffodils* of a whitiſh green, often produce varieties) *Auricula's, Ranunculus's,* &c. and preſerve them dry: Shade your *Carnations* from the afternoon *Sun.*

You may now begin to lay your *Gilly-flowers.*

Take up your rareſt *Anemonies,* and *Ranunculus's* after rain (if it come ſeaſonable) the *ſtalk* wither'd, and dry the *roots* well: This, about the *end* of the *Moneth:* In mid-*June* inoculate *Jaſmine, Roſes,* and ſome other rare *ſhrubs.* Sow now alſo ſome *Anemony-ſeeds.* Take up your *Tulip-bulbs,* burying ſuch immediately as you find naked upon your *beds;* or elſe *plant* them in ſome *cooler* place; and *refreſh* over-parch'd *beds* with water. Water your *Pots* of *Narciſſus* of *Japan* (that rare Flower) &c. Stop ſome of your *Scabious* from running to *ſeed* the firſt year, by now removing them, and next year they will produce excellent *flowers.* Alſo may you now take up all ſuch *Plants* and *Flower-roots* as endure not well out of the ground, and *replant* them again immediately; ſuch as the early *Cyclamen, Jacynth-Oriental,* and other *bulbous Jacynths, Iris, Fritillaria, Crown-Imperial, Martagon, Muſcaris, Dens Caninus, &c.* The *ſlips* of *Myrtil* ſet in ſome *cool* and *moiſt* place do now frequently take *root:* Alſo *Cytiſus lunatus* will be multiplied by *ſlips* in a moiſt place, ſuch as are an *handful long* of that *Spring,* but neither by *Seeds* or *Layers.* Look now to your *Aviary;* for now the *Birds* grow *ſick* of their *Feathers;* therefore aſſiſt them with *Emulſions* of the *cooler ſeeds bruis'd* in their *water,* as *Melons, Cucumbers, &c.* Alſo give them *Succory, Beets, Groundſell, Chick-weed,* freſh-*Gravel,* and *Earth, &c.*

Flowers in *Prime,* or yet *laſting.*

A*Maranthus, Antirrhinum, Aſphodel, Campanula, Convolvulus, Cyclamen, Clematis Pannonica, Cyanus, Blattaria, Digitalis, Gladiolus, Hedyſarum, Geranium, Horminum Creticum, Hieracium, Heſperis, bulbous Iris,* and divers others, *Lychnis var. generum, Martagon* white and red, *Millefolium* white and yellow, *Naſturtium Indicum, Nigella, Aſter Atticus, Hellebor Alb. Gentiana, Trachelium, Ficus Indica, Fraxinella,* ſhrub *Night-ſhade, Jaſmines, Honey-ſuckles, Geniſta Hiſp. Carnations, Pinks, Armerius, Ornithogalum, Panſy, Phalangium Virginianum, Larks-heel* early, *Philoſella, Roſes, Thlaſpi Creticum,* &c. *Veronica, Viola pentaphyl. Campions* or *Sultans, Mountain Lillies* white, red: double *Poppies, Palma-Chriſti, Stock-gillyflowers, Corn-flag, Holly-hoc, Muſcaria, Serpillum Citratum, Phalangium Allobrogicum, Oranges, Roſemary, Lentiſcus, Pomegranade,* the *Lime-tree, &c.*

♌

Sun { rises-04h-00m / sets--08h-00m } JULY { Hath Days xxxi. } long-15h-59m

To be done

In the *Orchard*, and *Olitory-Garden*.

SOw *Lettuce*, *Radish*, *&c.* to have tender *salletting*.
Sow *later Pease* to be ripe six weeks after *Michaelmas*.

Water young planted *Trees*, and *Layers*, *&c.* and reprune now *Abricots*, and *Peaches*, saving as many of the *young* likeliest *shoots* as are well placed; for the now *Bearers* commonly perish, the *new ones* succeeding: Cut *close* and *even*, purging your *Wall-fruit* of superfluous leaves which hinder from the *Sun*; but do it discreetly.

You may now also begin to *Inoculate*.

Let such *Olitory-herbs* run to *seed* as you would save.

Towards the *later end*, visit your *Vineyards* again, *&c.* and *stop* the exuberant *shoots* at the *second joynt* above the *fruit* (if not finish'd before); but not *so* as to expose it to the *Sun*, without some umbrage.

Remove long-sided *Cabages* planted in *May*, to head in *Autumne*; 'tis the best *Cabage* in the World.

Now begin to streighten the *entrance* of your *Bees* a little; and help them to *kill* their *Drones* if you observe too many; setting the new-invented *Cucurbit-Glasses* of *Beer* mingled with *Honey*, to entice the *Wasps*, *Flies*, *&c.* which waste your *store*: Also hang *Bottles* of the same *Mixture* neer your *Red-Roman-Nectarines*, and other tempting *fruits*, for their destruction; else they many times invade your best *Fruit*.

Look now also diligently under the *leaves* of *Mural-Trees* for the *Snails*; they stick commonly somewhat *above* the *fruit*: pull not *off* what is *bitten*; for then they will certainly begin *afresh*.

Fruits in *Prime*, or yet *lasting*.

Apples.

Deux-ans, *Pepins*, Winter *Russetting*, *Andrew-apples*, *Cinnamon-apple*, red and white *Juneting*, the *Margaret-apple*, &c.

Pears.

The *Primat*, *Russet pears*, *Summer-pears*, green *Chesil-pears*, *Pearl-pear*, &c.

Cherries.

Carnations, *Morella*, *Great-bearer*, *Morocca-Cherry*, the *Egriot*, *Bigarreaux*, &c.

Peaches.

Nutmeg, *Isabella*, *Persian*, *Newington*, *Violet-muscat*, *Rambouillet*.

Plums, *&c.*

Primordial, *Myrobalan*, the red, blew, and amber *Violet*, *Damasc. Denny Damasc. Pear-plum*, *Damasc. Violet*, or *Cheson-plum*, *Abricot plum*, *Cinnamon-plum*, the *Kings-plum*, *Spanish*, *Morocco-plum*, *Lady Eliz. plum*, *Tawny*, *Damascene*, &c.

Rasberries, *Goose-berries*, *Corinths*, *Strawberries*, *Melons*, &c.

♌

Sun { rises-04h-00m / sets-08--00 }

JULY

{ Hath Days xxxi. } { long-15h 59-m }

To be done

In the *Parterre*, and *Flower-Garden.*

SLip *Stocks*, and other *lignous Plants* and *Flowers*: From henceforth to *Michaelmas* you may also lay *Gillyflowers*, and *Carnations* for *Increase*, leaving not above *two*, or three *spindles* for *flowers*, and nipping off superfluous *buds*, with *supports*, *cradles*, *canes*, or *hoofs*, to establish them against *winds*, and destroy *Earwigs*.

The *Layers* will (in a *month* or *six weeks*) strike *root*, being *planted* in a *light loamy earth*, mix'd with excellent *rotten soil* and *sifted*: plant six, or eight in a *pot* to save *room* in *Winter*: keep them well from too much *Rains*; yet water them in drouth, sparing the leaves: If it prove too wet, lay your pots side-long; but *shade* those which *blow* from the afternoon *Sun*, as in the former *Month*.

Yet also you may lay *Myrtils*, *Laurels*, and other curious *Greens*.

Water young planted *Shrubs* and *Layers*, *&c.* as *Orange-Trees*, *Myrtles*, *Granads*, *Amomum* especially, which *shrub* you can hardly *refresh* too often, and he requires abundant *compost*; as do likewise both the *Myrtle*, and *Granad*-Trees; therefore whenever you trim their *Roots*, or change their *Earth*, apply the richest *soil* (so it be sweet, and well consum'd) you can to them, *&c.* Clip *Box*, *&c.* in *Parterres*, *Knots*, and *Compartiments*, if need be, and that it grow out of *order*; do it after *Rain*.

Graff by *Approach*, *Inarch*, or *Inoculate Jasmines*, *Oranges*, and other your choicest *Shrubs*.

Take up your early *autumnal Cyclamen*, *Tulips*, and *Bulbs* (if you will *Remove* them, *&c.*) before mention'd; *Transplanting* them *immediately*, or a *Month* after if you please, and then cutting off, and trimming the *fibres*, spread them to *Air* in some *dry* place.

Gather *Tulip-seed*, if you please: but let it lie in the *pods*.

Gather now also your early *Cyclamen-seed*, and *sow* it presently in *Pots*.

Remove seedling *Crocus*'s sow'd in *September* constantly at this *Season*, placing them at wider intervals, till they begin to beat.

Likewise you may *take up* some *Anemonies*, *Ranunculus*'s, *Crocus*, *Crown Imperial*, *Persian Iris*, *Fritillaria*, and *Colchicums*; but plant the three last as soon as you have taken them up, as you did the *Cyclamens*; or you may stay till *August* or *September* ere you take them up, and replant *Colchicums*.

Remove now *Dens Caninus*, *&c.*

Take up your *Gladiolus* now yearly, the blades being dry, or else their *Off-sets* will poison the ground.

Latter end of *July*, *sift* your *Beds* for *Off-sets* of *Tulips*, and all *Bulbous Roots*; also for *Anemonies*, *Ranunculus's*, *&c.* which will prepare it for *re-planting* with such things as you have ready in *Pots* to plunge, or set in the *naked* earth till the next *season*; as *Amaranths*, *Canna Ind. Mirabile Peruv. Capsicum Ind. Nasturtium Ind. &c.* that they may not lie empty, and disfurnish'd.

You may sow some *Anemonies*, keeping them temperately moist.

Continue to *cut off* the withered *stalks* of your lower *flowers*, *&c.* and all others, covering with *earth* the *bared* roots, *&c.*

Now (in the *dryest Season*) with *Brine*, *Pot-ashes*, and *Water*, or a *decoction* of *Tobacco refuse*, water your *Gravel-walks*, *&c.* to destroy both *Worms* and *Weeds*, of which it will *cure* them for some *years*.

Flowers in *Prime*, or yet *lasting*.

Amaranthus, *Asphodel*, *Antirrhinum*, *Campanula*, *Clematis*, *Cyanus*, *Convolvulus*, *Sultana*. *Veronica* purple and odoriferous; *Digitalis*, *Eryngium Planum*, *Ind. Phaseolus*, *Geranium triste*, and *Creticum*, *Gladiolus*, *Gentiana*, *Hesperis*, *Nigella*, *Hedysarum*, *Fraxinella*, *Lychnis Chalcedon*, *Jacea*, white and double, *Nasturt. Ind.* *Millefolium*, *Musk-rose*, *Flos Africanus*, *Thlaspi Creticum*, *Veronica mag. & parva*, *Volubilis*, *Balsam-apple*, *Holy-hoc*, *Cornflower*, *Alkekengi*, *Lupines*, *Scorpion-grass*, *Caryophyllata omn. gen.* *Stock-gillyflower*, *Scabiosa*, *Mirab. Peru*: *Spartum Hispan.* *Monthly-rose*, *Jasmine*, *Indian Tuberous Jacynth*, *Limonium*, *Linaria Cretica*, *Pansies*, *Prunella*, *Delphinium*, *Phalangium*, *Periploca Virgin.* *Flos Passionis*, *Flos Cardinalis*, *Tucca*, *Oranges*, *Amomum Plinii*, *Oleanders* red and white, *Agnus Castus*, *Arbutus*, *Olive*, *Ligustrum*, *Tilia*, &c.

m

Sun { rises-6^h-43^m / sets--07^h-17^m } AUGUST { Hath Days xxxi. } long-14^h-33^m

To be done

In the *Orchard*, and *Olitory-Garden*.

INoculate now *early*, if before you began not, and gather your *bud* of that year: Let this work be done before you remove the *Stocks*.

Prune off yet also superfluous *branches*, and *shoots* of this *second spring*; but be careful not to expose the *fruit*, without leaves sufficient to *skreen* it from the *Sun*; *furnishing*, and *nailing* up what you will spare to cover the defects of your *Walls*. Continue yet to cleanse your *Vines* from exuberant *branches* that too much hinder the *Sun*.

Pull up the *Suckers*.

Clip *Roses* now done bearing.

Sow *Raddish*, especially the *Black*, to prevent running up to *seed*, *pale tender-Cabbages*, *Cauly-flowers* for *Winter-Plants*, *Corn-sallet*, *Marygolds*, *Lettuce*, *Carrots*, *Parsneps*, *Turneps*, *Spinage*, *Onions*; also curl'd *Endive*, *Angelica*, *Scurvy-grass*, &c.

Likewise now pull up ripe *Onions* and *Garlic*, &c.

Towards the *end* sow *Purslan*, *Chard-beet*, *Chervile*, &c.

Transplant such *Lettuce* as you will have abide all *Winter*.

Gather your *Olitory-seeds*, and *clip*, and cut all such *Herbs* and *Plants* within one *handful* of the *ground* before the *full*. Lastly,

Unbind, and release the *Buds* you *inoculated* if taken, *&c.* likewise stop, and prune them.

Now *vindemiate*, and take your *Bees* towards the expiration of this *Month*; unless you see cause (by reason of the *Weather* and *Season*) to defer it till mid-*September*: But if your *Stocks* be very *light* and weak, begin the earlier.

Make your Summer *Perry*, and *Cider*.

Fruits in *Prime*, and yet *lasting*.

Apples.

THe *Ladies Longing*, the *Kirkham* Apple, *John* Apple; the *Seaming* Apple, *Cushion* Apple, *Spicing*, *May-flower*, *Sheeps snout*.

Pears.

Windsor, *Sovereign*, *Orange*, *Bergamot*, *Slipper* Pear, *Red Catherine*, *King Catherine*, *Denny* Pear, *Prusia* Pear, Summer *Poppering*, *Sugar* Pear, *Lording* Pear, *&c.*

Peaches.

Roman Peach, *Man* Peach, *Quince* Peach, *Rambouillet*, *Musk*-Peach, *Grand Carnation*, *Portugal* Peach, *Crown* Peach, *Bourdeaux* Peach, *Lavar* Peach, the Peach *Des pot*, *Savoy Malacaton*, which lasts till *Michaelmas*.

Nectarines.

The *Muroy* Nectarine, *Tawny*, Red-*Roman*, little *Green* Nectarine, *Cluster* Nectarine, *Yellow* Nectarine.

Plums.

Imperial, Blew, White *Dates*, Yellow *Pear-plum*, Black *Pear-plum*, White *Nutmeg*, late *Pear-plum*, Great *Anthony*, *Turkey* Plum, the *Jane* Plum.

Other Fruit.

Cluster-grape, *Muscadine*, *Corinths*, *Cornelians*, *Mulberries*, *Figs*, *Filberts*, *Melons*, &c.

♍

Sun { rises-04h-43m / sets-07--17 } **AUGUST** { Hath Days xxxi. } long-14h-33m

To be done

In the *Parterre*, and *Flower-Garden.*

NOw (and not till *now*, if you expect *succeſs*) is the juſt *Seaſon* for the *budding* of the *Orange* Tree: *Inoculate* therefore at the commencement of this *Month.*

Now likewiſe take up your *bulbous Iris's*; or you may ſow their *ſeeds*, as alſo thoſe of *Larks-heel*, *Candy-tufts*, *Columbines*, *Iron-colour'd Fox-gloves*, *Holly-hocks*, and ſuch Plants as endure *Winter*, and the approaching *Seaſons.*

Plant ſome *Anemony* roots to have *Flowers* all *Winter*, if the *roots* eſcape; and take up your *ſeedlings* of laſt year, which now tranſplant for bearing: alſo plant *Dens Caninus*, *Autumnal Crocus*, and *Colchicums*: Note, that *Engliſh Saffron* may be ſuffered to ſtand for increaſe to the *third* or *fourth* year without removing.

You may now ſow *Narciſſus*, and *Oriental Jacynths*, and re-plant ſuch as will not do well out of the *Earth*, as *Fritillaria*, *Hyacinths*, *Martagon*, *Dens Caninus*, *Lillies.*

Gilly-flowers may yet be *ſlipp'd.*

Continue your taking up of *Bulbs*, dry them, and lay them up; *Lillies*, *&c.* of which before:

Gather from day to day your *Alaternus* ſeed as it grows black and ripe, and ſpread it to *ſweat*, and *dry* before you put it up; therefore *move* it ſometimes with a *broom*, that the *ſeeds* clog not together, unleſs you will ſeparate it from the *Mucilage*, for then you muſt a little bruiſe it wet; waſh and dry them in a cloth.

Water well your *Balſamine fœm.*

Moſt other *Seeds* may now likewiſe be gathered from *ſhrubs*, which you find ripe.

About mid-*Auguſt*, tranſplant *Auricula's*, dividing old, and luſty *roots*; alſo prick out your *Seedlings*: They beſt like a *loamy ſand*, or light moiſt *Earth*; yet rich, and ſhaded: You may likewiſe ſow *Auricula.*

Now, towards the latter end, you may ſow *Anemony* ſeeds, *Ranunculus's*, *&c.* lightly cover'd with fit mould in *Caſes*, ſhaded and frequently *refreſh'd*: Alſo *Cyclamen*, *Jacynths*, *Iris*, *Hepatica*, *Primroſes*, *Fritillaria*, *Martagon*, *Fraxinella*, *Tulips*, *&c.* but with *patience*, for ſome of them; becauſe they *flower* not till *three*, *four*, *five*, *ſix*, and *ſeven* years after, eſpecially the *Tulips*; therefore diſturb not their *beds*, and let them be under ſome *warm* place, *ſhaded* yet, till the *heats* are paſt, leſt the *ſeeds* dry; only the *Hepatica's*, and *Primroſes* may be ſow'd in ſome leſs expos'd *Beds.*

Now, about *Bartholomew-tide*, is the only *ſecure-ſeaſon* for *removing*, and *laying* your *perennial Greens*; *Oranges*, *Lemmons*, *Myrtils*, *Phillyreas*, *Oleanders*, *Jaſmines*, *Arbutus*, and other rare *Shrubs*, as *Pomegranads*, *Monthly Roſes*, and whatever is moſt obnoxious to *froſts*; taking the *ſhoots*, and *branches* of the paſt *Spring*, and *pegging* them down in very *rich earth* and *ſoil* perfectly conſum'd, *watering* them upon all occaſions during the *Summer*; and by this time *twelve month* they will be ready to *remove*, *Tranſplanted* in fit earth, ſet in the *ſhade*, and kept moderately *moiſt*, not *over* wet, leſt the young *fibres* rot; after *three* weeks ſet them in ſome more airy place, but not in the *Sun*, till fifteen days more; *Vide* our *Obſervations* in *April*, and *May*, for the reſt of theſe choice *Directions.*

Flowers in *Prime*, or yet *laſting.*

Amaranthus, *Anagallis Luſitanica*, *Aſter Atticus*, *Blattaria*, *Spaniſh Bells*, *Belvedere*, *Carnations*, *Campanula*, *Clematis*, *Cyclamen Vernum*, *Datura Turcica*, *Eliochryſon Eryngium planum & Amethyſtinum*, *Geranium Creticum*, and *Triſte*, Yellow *Stocks*, *Hieracion minus Alpeſtre*, *Tuberoſe Hyacinth*, *Limonium*, *Linaria Cretica*, *Lychnis*, *Mirabile Peruvian.* Yellow *Millefol. Naſturt. Ind.* Yellow mountain *Hearts-eaſe*, *Maracoc*, *Africanus flos*, *Convolvulus's*, *Scabious*, *Aſphodils*, *Delphinium*, *Lupines*, *Colchicum*, *Leucoion*, *Autumnal Hyacinth*, *Holly-hoc*, *Star-wort*, *Heliotrop*, *French Mary-gold*, *Daiſies*, *Geranium nocte olens*, Common *Panſies*, *Larks-heels* of all colours, *Nigella*, *Helleborus*, *Balſamin: fœm: Lobells Catch-fly*, *Thlaſpi Creticum*, *Roſemary*, *Muſk-Roſe*, *Monthly Roſe*, *Oleanders*, *Spaniſh Jaſmine*, Yellow *Indian Jaſmine*, *Myrtyls*, *Oranges*, *Pomegranads* double, and ſingle flowers, Shrub *Spiræa*, *Agnus Caſtus*, the *Virginian Martagon*, *Malva arboreſcens*, &c.

♎

Sun { rises-05h-41m / sets--06h-19m } SEPTEMBER { Hath Days xxx. } long-12h-37m

To be done

In the *Orchard*, and *Olitory-Garden*.

GAther now (if ripe) your *Winter Fruits*, as *Apples*, *Pears*, *Plums*, *&c.* to prevent their *falling* by the great *Winds*: Also gather your *Windfalls* from day to day: do this work in *dry* weather.

Releaſe Inoculated *Buds*, or ſooner, if they pinch.

Sow *Lettuce*, *Radiſh*, *Spinage*, *Parſneps*, *Skirrets*, &c. *Caully-flowers*, *Cabbages*, *Onions*, &c. *Scurvy-graſs*, *Anniſeeds*, &c.

Now may you *Tranſplant* moſt ſorts of *Eſculent*, or *Phyſical* Plants, *&c.*

Alſo *Artichocks*, and *Aſparagus-roots*.

Sow alſo *Winter-Herbs* and *Roots*, and plant *Straw-berries* out of the *Woods*.

Towards the *end*, Earth up your *Winter-plants*, and *Sallad herbs*; and plant forth your *Caully-flowers*, and *Cabbages* which were ſown in *Auguſt*.

No longer now defer the *taking* of your *Bees*, ſtreightning the *entrances* of ſuch *Hives* as you leave to a ſmall *paſſage*, and continue ſtill your *hoſtility* againſt *Waſps*, and other robbing *Inſects*.

Cider-making continues.

Fruits in *Prime*, or yet *laſting*.

Apples.

THe *Belle-bonne*, the *William*, Summer *Pearmain*, *Lording-apple*, *Pear-apple*, *Quince-apple*, *Red-greening ribb'd*, *Bloody-Pepin*, *Harvey*, *Violet-apple*, &c.

Pears.

Hamdens Bergamot (firſt ripe) Summer *Bon Chreſtien*, *Norwich*, *Black Worceſter*, (baking) *Green-field*, *Orange*, *Bergamot*, the *Queen* hedg-pear, *Lewes-pear* (to dry excellent) *Frith-pear*, *Arundel-pear*, (alſo to bake) *Brunſwick-pear*, Winter *Poppering*, *Bings-pear*, *Biſhops-pear*, (baking) *Diego*, *Emperours-pear*, *Bluſter-pear*, *Meſſire Jean*, *Rowling-pear*, *Balſam-pear*, *Bezy d'Hery*, &c.

Peaches, *&c.*

Malacoton, and ſome others, if the year prove backwards, *Almonds*, &c.

Quinces.

Little *Blew-grape*, *Muſcadine-grape*, *Frontiniac*, *Parſley*, great *Blew-grape*, the *Verjuice-grape* excellent for ſauce, &c.

Berberries, &c.

Sun { rises-05h-41m / sets-06--19m } ♍ SEPTEMBER { Hath Days xxx. } long-12h-37m

To be done

In the *Parterre*, and *Flower-Garden*.

PLant some of all the sorts of *Anemonies* in good, rich natural earth, especially the *Latifol.* after the first *Rains*, if you will have *flowers* very forwards; but it is surer to attend till *October*, or the *Month* after, lest the over *moisture* of the *Autumnal* seasons, give you cause to repent.

Now is the most proper season to sow *Auricula seeds*, setting the *Cases* in the *Sun* till *April*: See *April*.

Begin now also to *plant* some *Tulips*, unless you will stay till the later end of *October*, to prevent all hazard of *rotting* the *Bulbs*. Plant *Daffodils*, and *Colchicum*.

All *Fibrous* Plants, such as *Hepatica*, *Hellebor*, *Cammomile*, &c. Also the *Capillaries*; *Matricaria*, *Violets*, *Primroses*, &c. may now be *transplanted*; as likewise *Iris-Chalcedon*, *Cyclamen*, &c.

Now you may also continue to sow *Alaternus*, *Phillyrea*, (or you may forbear till the *Spring*) *Iris*, *Crown Imperial*, *Martagon*, *Tulips*, *Delphinium*, *Nigella*, *Candy-tufts*, *Poppy*; and generally all the *Annuals* which are not impair'd by the *Frosts*.

Sow *Primroses* likewise: Remove seedling *Digitalis*, and plant the slips of *Lychnis* at the beginning.

Your *Tuberoses* will not endure the wet of this *Season*, therefore set the *Pots* into your *Conserve*, and keep them very dry; It is best to take them out of the *Pots*, about the beginning of this *Month*, and either to preserve them in dry *sand*, or to wrap them up in *Papers*, and so put them in a box near the Chimny.

Bind now up your *Autumnal Flowers*, and *Plants* to *stakes*, to prevent sudden *Gusts* which will else prostrate all you have so industriously rais'd.

Now you may take off *Gilly-flower-layers* with earth and all, and plant them in *pots*, or borders shaded.

Crocus will be now rais'd of *Seeds*,

Prune *Pines*, and *Firrs* a little after this *Æquinox*, if you omitted it in *March*. Vide *March*.

About *Michaelmas* (sooner, or later, as the *Season* directs) the weather *fair*, and by no means *foggy*, retire your choice *Greens*, and rarest *Plants* (being *dry*) as *Oranges*, *Lemmons*, *Indian*, and *Span. Jasmine*, *Oleanders*, *Barba-Jovis*, *Amomum Plin. Cytisus Lunatus*, *Chamelæa tricoccos*, *Cistus Ledon Clusii*, *Dates*, *Aloes*, *Sedum's*, &c. into your *Conservatory*; ordering them with fresh *mould*, as you were taught in *May* and *July*, *viz.* taking away some of the upmost *exhausted* earth, and *stirring* up the rest, fill the Cases with rich, and well consumed *soil*, to wash in, and nourish the Roots during *Winter*; but as yet leaving the *doors* and *windows* open, and giving them much *Air*, so the *Winds* be not sharp and high, nor weather *foggy*; do thus till the *cold* being more intense, advertise you to *enclose* them altogether: *Myrtils* will endure abroad near a *Month* longer.

The *cold* now advancing, set such *Plants* as will not endure the *House*, into the *earth*; the *Pots* two or three *inches* lower than the *surface* of some *bed* under a *Southern* exposure: Then *cover* them with *glasses*, having *cloath'd* them first with sweet, and dry *Moss*; but upon all *warm*, and benigne *emissions* of the *Sun*, and sweet *showers*, giving them *air*, by taking off all that covers them: Thus you shall preserve your *costly*, and precious *Marum-Syriacum*, *Cistus's*, *Geranium nocte olens*, *Flos Cardinalis*, *Maracocs*, seedling *Arbutus's* (a very hardy Plant when greater) choicest *Ranunculus's* and *Anemonies*, *Acacia Egpyt.* &c. Thus governing them till *April*. Secerets not till now divulg'd.

Note, That *Cats* will eat, and destroy your *Marum-Syriacum* if they can come at it, therefore guard it with a *Furs*, or *Holy-branch*.

Flowers in *Prime*, or yet *lasting*.

Amaranthus tricolor, and others; *Anagallis of Portugal*, *Antirrhinum*, *African flo. Amomum Plinii*, *Aster Atticus*; *Belvedere*, *Bellis*, *Campanula's*, *Colchicum*, *Autumnal Cyclamen*, *Clematis*, *Chrysanthemum angustifol. Eupatorium* of *Canada*, *Sun-flower*, *Stock-gil. flo. Geranium Creticum*, and *nocte olens*, *Gentianella annual*, *Hieracion minus Alpestre*, *Tuberous Indian Jacynth*, *Linaria Cretica*, *Lychnis Constant.* single and double; *Limonium*, *Indian Lilly*, *Narciss. Pomum Aureum*, and *Amoris*, & *Spinosum Ind.* Marvel of *Peru*, *Millefolium* yellow, *Moly Monspelien. Nasturtium Indicum*, *Persian autumnal Narcissus*, *Virginian Phalangium*, *Indian Phaseolus*, *Scarlet Beans*, *Convolvulus divers. gen. Candy-tufts*, *Veronica*, purple *Volubilis*, *Asphodil*, *Crocus*, or English *Saffron*, *Garnsey Lilly*, or *Narcissus* of *Japan*, *Poppy* of all colours, single, and double, *Malva arborescens*, *Indian Pinks*, *Æthiopic Apples*, *Capsicum Ind. Gilly-flowers*, *Passion-flower*, *Datura* double and sing. *Portugal Ranunculus's*, *Spanish Jasmine*, yellow *Virginian Jasmine*, *Rhododendron* white and red, *Oranges*, *Myrtils*, *Balaustia*, *Musk-Rose*, and *Monthly-Rose*, *Malva arborescens*, &c.

m

Sun { rises- $^{h}06\cdot26^{m}$ / sets-- $05^{h}\cdot24^{m}$ } OCTOBER { Hath Days xxxi. } long- $10^{h}\cdot47^{m}$

To be done

In the *Orchard*, and *Olitory-Garden*.

Trench Grounds for *Orcharding*, and the *Kitchen-Garden*, to lie for a *Winter* mellowing.

Plant dry *Trees* (*i.*) *Fruit* of all sorts, *Standard*, *Mural*, or *Shrubs* which lose their *leaf*; and that so soon as it *falls*: but be sure you chuse no *Trees* for the *Wall* of above *two* years *Grafting* at the most, *sound* and *smooth*.

Now is the time for *Ablaqueation*, and laying *bare* the *Roots* of old *unthriving*, or over *hasty-blooming* trees.

Moon now *decreasing*, gather *Winter-fruit* that remains, weather dry; take heed of *bruising*, lay them up *clean* lest they *taint*; *Cut* and prune *Roses* yearly, reducing them to a *Standard* not over tall.

Plant, and Plash *Quick-sets*.

Remove *Graffs* after the second year, unless *Dwarfs*, which you may let stand till the third.

Save, and sow all *stony*, and hard *kernels* and *seeds*; such as black *Cherry*, *Morellos*, black *Heart*, all good; *Pear-plum*, *Peach*, *Almond-stones*, *&c.* Also *Nuts*, *Haws*, *Ashen*, *Sycomor*, and *Maple* keys; *Acorns*, *Beech-mast*, *Apple*, *Pear*, and *Crab* kernels, for *Stocks*; or you may defer it till the next *Month* towards the latter end, keeping them dry, and free from mustiness; remembring to cover the beds with *littier*.

You may yet sow *Genoa Lettuce* which will last all the *Winter*, *Reddish*, *&c.*

Make Winter *Cider*, and *Perry*.

Towards the latter end, plant *Abricots*, *Cherries*, *Plums*, *Vines*, *Winter-pears*, *&c.*

Fruits in *Prime*, or yet *lasting*.

Apples.

Belle-et-Bonne, *William*, *Costard*, *Lording*, *Parsley*-apples, *Pearmain*, *Pear-apple*, *Honey-meal*, *Apis*, &c.

Pears.

The *Caw-pear*, (baking) *Green-butter-pear*, *Thorn-pear*, *Clove-pear*, *Roussel-pear*, *Lombart-pear*, *Russet-pear*, *Saffron-pear*, and some of the former *Moneth*, *Violet-pear*, *Petworth-pear*, otherwise call'd the *Winter-Windsor*.

Bullis, and divers of the *September Plums* and *Grapes*, *Pines*, *Arbutus*, &c.

m

Sun { rises 06h-26m / sets 05--24 } OCTOBER { Hath Days xxxi. / long 10h-47m }

To be done
In the *Parterre*, and *Flower-Garden.*

NOw your *Hyacinthus Tuberose* not enduring the *wet*, must be set into the *house*, and preserved very *dry* till *April.*

Continue *sowing* what you did in *September* if you please: Likewise *Cypress* may be sown, but take heed of the Frost: *vide* March. Also,

You may *plant* some *Anemonies*, especially the *Tenuifolia's* and *Ranunculus's*, in fresh, *sandish earth*, taken from under the *turf*, but lay richer *mould* at the *bottom* of the *bed*, which the *fibres* may reach, but not touch the main *roots*, which are to be covered with the *natural earth* two inches deep: and so soon as they appear, secure them with *Mats*, or dry *Straw*, from the *winds* and *frosts*, giving them *air* in all benigne *intervals*, if possible *once* a day.

Plant also *Ranunculus's* of *Tripoly*, *Vernal Croeus's*, &c. Remove seedling *Holy-hocs*, or others.

Plant now your choice *Tulips*, &c. which you feared to *interre* at the beginning of *September*; they will be more secure, and forward enough: but plant them in *natural earth* somewhat *impoverished* with very fine *sand*; else they will soon lose their *variegations*; some more *rich earth* may lie at the *bottom*, within reach of the *fibres* (as above:) Now have a care your *Carnations* catch not too much *wet*; therefore retire them to *covert*, where they may be kept from the *rain*, not the *air*, or lay them on the sides; trimming them with *fresh mould.*

All sorts of *Bulbous roots* may now also be safely *buried*; likewise *Iris's*, &c.

You may yet sow *Alaternus*, and *Phillyrea* seeds: It will now be good to *Beat*, *Roll*, and *Mow Carpet-walks*, and *Cammomile*; for now the ground is *supple*, and it will *even* all *inequalities*: Finish your last *Weeding*, *&c.*

Sweep, and cleanse your *Walks*, and all other *places* from *Autumnal leaves* fallen, lest the *Worms* draw them into their *holes*, and foul your *Gardens*, *&c.*

Flowers in *Prime*, or yet *lasting.*

Amaranthus tricolor, &c. *Aster Atticus*, *Amomum*, *Antirrhinum*, *Colchicum*, *Saffron*, *Cyclamen*, *Clematis*, *Heliotrops*, *Stock-gilly-flo.* *Geranium triste*, *Ind. Tuberose Jacynth*, *Limonium*, *Lychnis* white and double, *Pomum Amoris* and *Æthiop.* *Marvel* of *Peru*, *Millefol. luteum*, *Autumnal Narciss.* *Pansies*, *Aleppo Narciss.* *Sphærical Narciss.* *Nasturt.* *Persicum*, *Gilly-flo.* *Virgin.* *Phalangium*, *Pilosella*, *Violets*, *Veronica*, *Arbutus*, *Span.* *Jasmine*, and yellow *Ind.* *Jasmine*, Monethly *Rose*, *Oranges*, *Myrtils*, *Balaust.*

Sun { rises-07h-34m / sets--04h-26m } NOVEMBER { Hath Days xxx. } long-08h 52m

To be done

In the *Orchard*, and *Olitory-Garden*.

CArry *Compost* out of your *Melon-ground*, or turn, and *mingle* it with the *earth*, and lay it in *Ridges* ready for the *Spring*: Also *trench*, and fit ground for *Artichocks*, *&c.*

Continue your *Setting*, and *Transplanting* of *Trees*; lose no time, hard *Frosts* come on apace: Yet you may lay *bare* old *roots*.

Plant young Trees, *Standards*, or *Mural*.

Furnish your *Nursery* with *Stocks* to *graff* on the following year.

Sow, and *set* early *Beans*, and *Pease* till *Shrove-tide*; and now lay up in your *Cellars* for *spending*, and for *Seed*, to be *transplanted* at *Spring*, *Carrots*, *Parsneps*, *Turneps*, *Cabbages*, *Cauly-flowers*, *&c.*

Cut off the *tops* of *Asparagus*, and *cover* it with *long-dung*, or make *Beds* to *plant* in *Spring*, *&c.*

Now, in a *dry* day, gather your last *Orchard-fruits*.

Take up your *Potatos* for *Winter* spending, there will enough remain for *stock*, though never so exactly gather'd.

Fruits in *Prime*, or yet *lasting*.

Apples.

THe *Belle-bonne*, the *William*, Summer *Pearmain*, *Lording-apple*, *Pear-apple*, *Cardinal*, Winter *Chess-nut*, *Short-start*, *&c.* and some others of the former *two* last *Moneths*, *&c.*

Pears.

Messire Jean, *Lord-pear*, long *Bergamot*, *Warden* (to bake) *Burnt-Cat*, *Sugar-pear*, *Lady-pear*, *Ice-pear*, *Dove-pear*, *Deadmans-pear*, *Winter Bergamot*, *Bell-pear*, *&c.*

Arbutus, *Bullis*, *Medlars*, *Services*.

♐

Sun { rises-07h-34m / sets-04--26 } NOVEMBER { Hath Days xxx. / long-08-52m }

To be done
In the *Parterre*, and *Flower-Garden.*

SOw *Auricula* ſeeds thus; prepare very *rich earth*, more than half dung, upon that *ſieft* ſome very light *ſandy mould*, and the *earth* gotten out of old hollow *Willow-trees*; and then *ſow*: ſet your *Caſes* or *Pans* in the *Sun* till *March*, or *April.*

Cover your peeping *Ranunculus's*, *&c.* And ſee the Advice in *March*, for *Ever-green Seedlings*; eſpecially, if long *Snows*, and bitter *winds* be feared.

Now is your beſt *ſeaſon* (the weather *open*) to *plant* your faireſt *Tulips* in places of *ſhelter*, and under *Eſpaliers*; but let not your *earth* be too *rich*; *vide October. Tranſplant* ordinary *Jaſmine*, *&c.*

About the *middle* of this *Moneth* (or ſooner, if *weather* require) quite *encloſe* your *tender* Plants, and *perennial Greens*, *Shrubs*, *&c.* in your *Conſervatory*, ſecluding all entrance of *cold*, and eſpecially ſharp *winds*; and if the *Plants* become exceeding *dry*, and that it do not actually *freeze*, refreſh them *ſparingly* with *qualified water*, (i.) mingled with a little *Sheeps*, or *Cow-dung*: If the *ſeaſon* prove exceeding piercing (which you may know by the *freezing* of a *diſh* of *water*, or moiſtned *Cloth*, ſet for that purpoſe in your *Greenhouſe*) kindle ſome *Charcoals*, and when they have done ſmoaking, put them in a *hole* ſunk a little into the *floor* about the middle of it: This is the ſafeſt *Stove*: At all other times, when the *air* is warm'd by the *beams* of a fine *day*, and that the *Sun* darts full upon the *houſe*, without the leaſt *wind* ſtirring, ſhew them the light; but encloſe them again before the *Sun* be gone off: Note, That you muſt never give your *Aloes*, or *Sedums* one drop of *water* during the whole *Winter*: And indeed, you can hardly be too ſparing of *Water* to your *hous'd plants*; the not obſerving of *this*, deſtroys more *Plants* than all the rudeneſſes of the *Seaſon*: To know when they want refreſhing, conſider the *leaves*; if they *ſhrivel* and *fold up*, give them *drink*; if *pale*, and *whitiſh*, they have already too much; and the defect is at the *roots*, which are in peril of rotting. If your *Aloes* grow manifeſtly too dry, expoſe it a while to the air, when clear, 'twill immediately recover them; but give them not a drop of *water* how dry ſoever their pots be.

Houſe your choiceſt *Carnations*, or rather ſet them under a *Pent-houſe* againſt a South-wall, ſo as a *Covering* being thrown over them to preſerve them in extremity of *weather*, they may yet enjoy the freer *air* at all other times.

Prepare alſo *Mattraſſes*, *Boxes*, *Caſes*, *Pots*, *&c.* for *ſhelter* to your tender *Plants* and *Seedlings* newly ſown, if the *weather* prove very bitter.

Plant *Roſes*, *Althæa frutex*, *Lilac*, *Syringas*, *Cytiſus*, *Peonies*, *&c.*

Plant alſo *Fibrous roots*, ſpecified in the precedent *Moneth.*

Sow alſo *ſtony-ſeeds* mentioned in *October.*

Plant all *Foreſt-trees* for *Walks*, *Avenues*, and *Groves.*

Sweep, and cleanſe your *Garden-walks*, and all other places, from *Autumnal* leaves, the laſt time.

Flowers in *Prime*, or yet *laſting.*

ANemonies, *Meadow Saffron*, *Antirrhinum*, *Stock-gilly-flo.* *Bellis*, *Clematis*, *Panſies*, ſome *Carnations*, double *Violets*, *Vetonica*, *Spaniſh* and *Indian Jaſmine*, *Myrtils*, *Muſk Roſe*, &c.

♑

Sun { rises-08h-10m / sets--03h-50m } DECEMBER { Hath Days xxxi. } long-07h-46m

To be done

In the *Orchard*, and *Olitory-Garden*.

PRune, and Nail *Wall-fruit*, (which yet you may defer a *Moneth* or two longer) and *Standard-trees*.

You may now plant *Vines*, &c.

Also *Stocks* for *Graffing*, &c.

Sow as yet, *Pomace* of *Cider-pressings* to raise *Nurseries*; and set all sorts of *Kernels*, *Stones*, &c.

Sow for early *Beans*, and *Pease*, but take heed of the *Frosts*; therefore *surest* to defer it till after *Christmas*, unless the *Winter* promise very *moderate*.

All this *Moneth* you may continue to *Trench* Ground, and *dung* it, to be ready for *Bordures*, or the planting of *Fruit-trees*, &c.

Either late in this *month*, or in *January*, prune, and cut off all your *Vine-shoots* to the very *root*, save *one*, or *two* of the stoutest, to be left with three, or four *eyes* of *young wood*: This, for the *Vineyard*.

Now *feed* your *weak Stocks*.

Turn, and *refresh* your *Autumnal Fruit*, lest it *taint*, and open the *Windows* where it lies, in a clear and *Serene* day.

Fruits in *Prime*, and yet *lasting*.

Apples.

ROußeting, *Leather-coat*, Winter *Reed*, *Chess-nut*-Apple, *Great-belly*, the *Go-no-further*, or *Cats-head*, with some of the precedent *Moneth*.

Pears.

The *Squib-pear*, *Spindle-pear*, *Doyoniere*, *Virgin*, *Gascogne-Bergomot*, *Scarlet-pear*, *Stopple-pear*, White, red, and *French Wardens* (to bake or roast) &c. the Dead-mans *pear*, excellent, &c.

♑

Sun { rises-08h-10m / sets-03--50m } DECEMBER { Hath Days xxxi. } long-07h-40m

To be done

In the *Parterre*, and *Flower-Garden*.

AS in *January*, continue your *hostility* against *Vermine*.

Preserve from too much *Rain* and *Frost*, your choicest *Anemonies*, *Ranunculus's*, *Carnations*, *&c.*

Be careful now to keep the *Doors* and *Windows* of your *Conservatories* well *matted*, and guarded from the piercing *Air:* for your *Oranges*, *&c.* are now put to the *test*: Temper the *cold* with a few *Charcoal* govern'd as directed in *November*; but never accustom your *Plants* to it, unless the *utmost* severity of the *Season* require; therefore, if the *place* be exquisitely *close*, they will even *then* hardly require it, *&c.*

Set *Bay-berries*, &c. dropping ripe.

Look to your *Fountain-pipes*, and cover them with fresh, and *warm Littier* out of the *Stable*, a good *thickness*, lest the *frosts* crack them; remember it in *time*, and the *Advice* will save you both trouble and charge.

Flowers in *Prime*, and yet *lasting*.

ANemonies some, *Persian*, and *Common* winter *Cyclamen*, *Antirrhinum*, *Black Hellebor*, *Laurus tinus*, single *Primroses*, *Stock-gilly-flo. Iris Clusii*, *Snow flowers* or *drops*, *Yucca*, *&c.*

FOr by such a *Kalendar* it is that a *Royal Garden* or *Plantation* may be contrived, according to my Lord *Verulam*'s design, *pro singulis Anni Mensibus*, for every *Moneth* of the *Year*.

But, because it is in this *cold Season*, that our *Gard'ner* is chiefly diligent about preserving his more *tender*, *rare*, *exotic*, and *costly Shrubs*, *Plants*, and *Flowers*; We have thought fit to add the *Catalogue*, as it is (much after this sort) *collected* to our hands, by the *Learned* and Industrious Doctor *Sharrock* (though with some *reformation* and *improvement*) of all *such*, as according to their different *Natures*, do require *more*, or *less* indulgence: And these we have distributed likewise, into the *three* following *Classes*.

I. CLASSE.

Being least *patient* of *Cold*, and therefore to be *first* set into the *Conservatory*, or other ways defended.

Acacia Ægyptiaca, *Aloe American. Amaranthus tricolor*, *Aspalathus Cret. Balsamum*, *Helichryson*, *Chamelæa tricoccos*, *Nasturtium Indicum*, *Indian Narcissus*, *Ornithogalon Arab. Ind. Phaseol. Capsicum Ind. Pomum Æthiop. Aureum*, *Spinosum*, Summer *Sweet Majoran*, the two *Marums Syriac.* &c. *Dactyls*, *Pistacio's*, the great *Indian Fig*, *Lilac flo. alb. Lavendula Multif. Clus. Cistus Ragusæus flo. alb. Colutea Odorata Cretica*, *Narcissus Tuberosus*, *Styrax Arbor*, &c.

II. CLASSE.

Enduring the second degree of *Cold*, and accordingly to be *secur'd* in the *Conservatory*.

Momum Plinii, *Carob*, *Chamelæa Alpestris*; *Cistus Ledon Clus. Citron*, *Vernal Cyclamen*, Summer *Purple Cyclamen*, *Digitalis Hispan. Geranium triste*, *Hedysarum Clypeatum*, *Aspalathus Creticus*, *Span. Jasmine*, *Virgin. Jasmine*, *Suza Iris*, *Jacobæa Marina*, *Alexandrian Laurel*, *Oleanders*, *Limonium elegans*, *Myrtils*, *Oranges*, *Lentiscus*, *Levantine tufted Narcissus*, *Gill. flo.* and choicest *Carnations*, *Phalangium Creticum*, *Asiatic* double and single *Ranunculus's*, *Narcissus* of *Japan*, *Cytisus rubra*, *Canna Indica*, *Thymus Capitatus*, *Verbena nodi flo. Cretica*, &c.

III. CLASSE.

Which not *perishing* but in excessive *Colds*, are therefore to be *last* set in; or rather *protected* under *Mattrasses*, and sleighter *Coverings*, abroad in the *Earth*, *Cases*, *Boxes*, or *Pots*, &c.

Abrotonum mas. fœm. Winter *Aconite*, *Adiantum Verum*, *Bellis Hispan. Calceolus Mariæ*, *Capparis*, *Cineraria*, *Cneorum Matthioli*, *Cytisus Maranthæ*, *rub. Lunatus*, *Eryngium planum totum Cæruleum*, *Fritillaria mont.*

Genista

Geniſta Hiſpan. flo. alb. Pomegranads, Oriental Jacynth, Bulbous Iris, Laurels, Cherry Laurel, Lychnis double white, *Matricaria* double flo. *Olives, Pancration, Papaver ſpinociſſ. Maracoc, Roſemary, Siſynrichium, Turpentine-tree, Teuchrium mas, Tithymal. Myrtifol. Vetonica* doub. flo. ſingle *Violets, Lavender, Serpentaria trifol. &c. Ornithogalon Arab.* white and doub. *Narciſſus* of *Conſtantinople*, late *Pine-apples, Moly, Perſian Jaſmine, Opuntia*, or the ſmaller *Indian Fig, Jucca, Seſeli Æthiop. Agnus Caſtus, Malva Arboreſcens, Ciſtus maſ. Althæa Frutex, Sarſaparilla, Cupreſſus, Crithmum marinum*, &c.

And to *theſe* might ſome others be *added*; but we conceive them *ſufficient*, and more than (we fear) ſome *envious*, and *mercinary Gard'ners* will *thank* us for; but they deſerve not the *name* of that *Communicative*, and noble *Profeſſion*: However, *this*, as a *Specimen* of our *Affection* to the *Publick*; and in *Commiſeration* of divers *honourable*, and Induſtrious *Perſons*, whoſe *Inclination* to this *innocent Toil*, has made them ſpare no *Treaſure*, or *Pains* for the *furniture* of their *Parterres* with *variety*, the *miſcarriage* whereof being ſometimes *univerſal* to the *Curious*, has made us the more *freely* to *impart* both what we have *experimentally* learn'd by our own *Obſervations*, and from *others* of undoubted *Candor* and *Ingenuity*: But of *this*, we promiſe a more ample *Illuſtration*, as it concerns the entire *Art*, together with all its *Ornaments* of *Uſe*, and *Magnificence*, as theſe *endeavours* of ours ſhall find *entertainment*, and *opportunity* contribute to the *Deſign*.

FINIS.

ERRATA.

Epist. to the *Reader* pag. 1. line 16. *reade* natural Science. p. 6. l. 1. r. *Forreigners.*

SYLVA.

Pag. 3. line 10. reade, some to thick Groves. p. 5. l. 25. there may be reason. In the *Latin Verses* r. *ducendum.* p. 7. l. 35. r. un-fermented are, with a *Comma.* p. 12. l. 38. r. *Tactics.* p. 22. l. 41. r. Season. p. 25. l 8. r. Coppice-Oke. p. 33. l. 32. Superior: with a *Colon.* p. 35. l. 4. r. *Critic.* p. 59. l. 46. r. *letation.* p. 72. l. 5. r. *superannuated.* p. 74. l. 8. r. *situation.* p. 79. l. 25 r. *Walls.* p. 90. l. 8. r. Visit. p. 101. l. 11. r. name, abroad. p. 107. l. 7. r. in the cold. p. 109. l. 4. r. *Capitels.* 12. r. or is so easie. p. 110. l. 11. r. *lustrous.* p. 111. l. 39. dele *the.* p. 118. l. 30. r. *Spergitorie.* p. 121. l. 21. r. *Phillyrea.* 25. *Perennial.* p. 122. l. 7. r. Use. p. 123. l. 5. r. *Painters.* 9. *Æsculus.* p. 127. l. 34. r. in any spot. p. 130. l. 41. r. *Panacea.* p. 149. l. 44 *Troglodytic.* p. 150. l. 13. r. *Ilex.* p. 151. l. 31. r. *intra.* p. 165. l. 12. r. its sourse. p. 166. at *Calcule*, put a *Comma.* p. 167. l. 31. r. 183. p. 168. l. 21. r. 54 *Inches.* p. 169. l. 3. r. in the first *Column* of the *Fifth Table.* p. 175. l. 6. r. haply. 13. r. *Waft.* 23. r. detruding. p. 180. l. 44. r. *Torulus.* p. 181. l. 24. r. *German Ayre.* p. 188. l. 9. r. said *here.* 44. r. second to that. p. 183. l. 36. r. are not yet. p. 198. l. 23. r. *Sand-Bath.* p. 200. in the *Latine-Verses* Geor. 2. r. *rasile Buxum.* in Mr. *Sandys*'s English Verses r. *Maple fleck't.* p. 204. l. 19. r. *dissimilar.* 30. begins. p. 217. l. 35. r. kind and *gentile.* p. 229. l. 41. r. ingenuous. p. 230. l. 19. r. as *Surius.* p. 235. l. 1. r. *Where* it seems. p. 238. l. 16. *Virgil*, dele *and.* p. 239. l. 9. r. Fame goes that *you.* p. 241. l. 7. r. safely may'st, Retreat. p. 243. l. 43. *dele*, to the Grave. p. 244. l. *penult.* r. does lay. p. 246. l. 27. r. Spiny.

POMONA.

Pag. 16. l. 25. r. *deleterious.* p. 38. l. 7. r. all the Summer.

KALENDARIUM.

Epist. Dedicat. l. 8. r. (not to say revenge upon) it. p. 7. l. 17, *dele* This, read a Third Edition. p. 15. l. 26. r. two or three days. p. 19. l. 13. r. Water your Pots. p. 25. *ultima lin.* dele, *Malva-arborescens, &c.*

Humanum est Errare.